

**R O S E T T A**  
**FLIGHT REPORTS**  
**of RPC-MAG**

**RO-IGEP-TR-0020**

**Issue: 1    Revision: 2**

**2006-10-25**

**STUDY OF POSSIBLE**  
**COMET ION TAIL ENCOUNTERS**  
**DURING ROSETTA'S CRUISE PHASE**

**Time Period: January 2006 - January 2014**

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Germany

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# ROSETTA

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## 1 Introduction

This document shows the results of an investigation concerning the encounter of the ROSETTA spacecraft and the possible ion tails of selected comets. All comets from 1P/Halley up to 178P/HUG-Bell plus some others have been taken into account. The cometary data have been retrieved as SPK Spice kernels from the JPL Horizons System (ssd.jpl.nasa.gov). The developed IDL software calculated the minimum distance between the anticipated ion tail of the specified comet and the ROSETTA spacecraft in the time period 2006 - 2014. The software generated two kinds of plots:

- Minimum Distance vs. Time
- Orbit projections of the comet and ROSETTA in the XY-plane of the ECLIPJ2000 system.  
Anticipated ion tail projection and parker spiral is added. A solar wind speed of 450 km/s has been used for this simulation.

If the minimum distance to the tail found by the software was below 0.2 AU a detailed table of the encounter parameters was added to the output.

## 2 Observation Recommendations

From the bunch of candidates found a subset was chosen for further investigation. The threshold for this refined subset was set to a minimum distance of 0.1AU. Thus the final candidates are:

COMET	Encounter Date	Minimum Distance to Ion Tail [AU]	Propagation Time of Tail Structure
45P/HONDA-MRKOS-PAJDUSAKOVA <sup>1</sup>	2006-07-06	0.0620	2.790
79P/DU TOIT-HARTLEY	2008-07-08	0.0780	2.440
CATALINA-LINEAR	2011-03-17	0.0440	6.650
11P/TEMPEL-SWIFT-LINEAR	2012-02-09	0.0650	0.000

For the investigation we propose to switch on the instruments in normal mode for the time interval **Encounter date  $\pm$  1 week.**

---

<sup>1</sup>Already detected by ROSETTA

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### **3 Comet 1P/HALLEY**

<b>Comet: 1P/HALLEY</b>
<b>No Encounter below 0.2000AU</b>

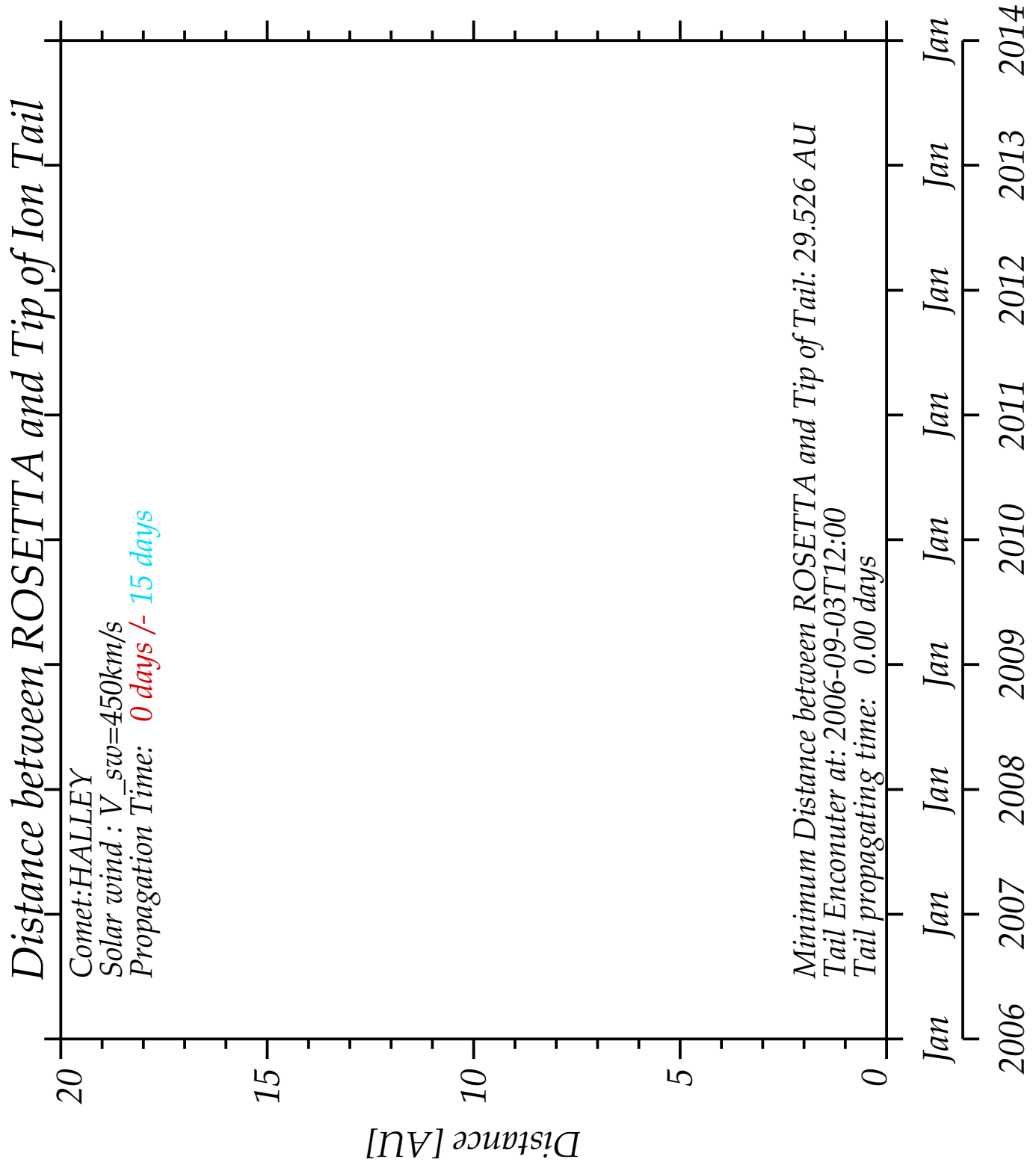


Figure 1: Minimum Distances: ROSETTA - HALLEY

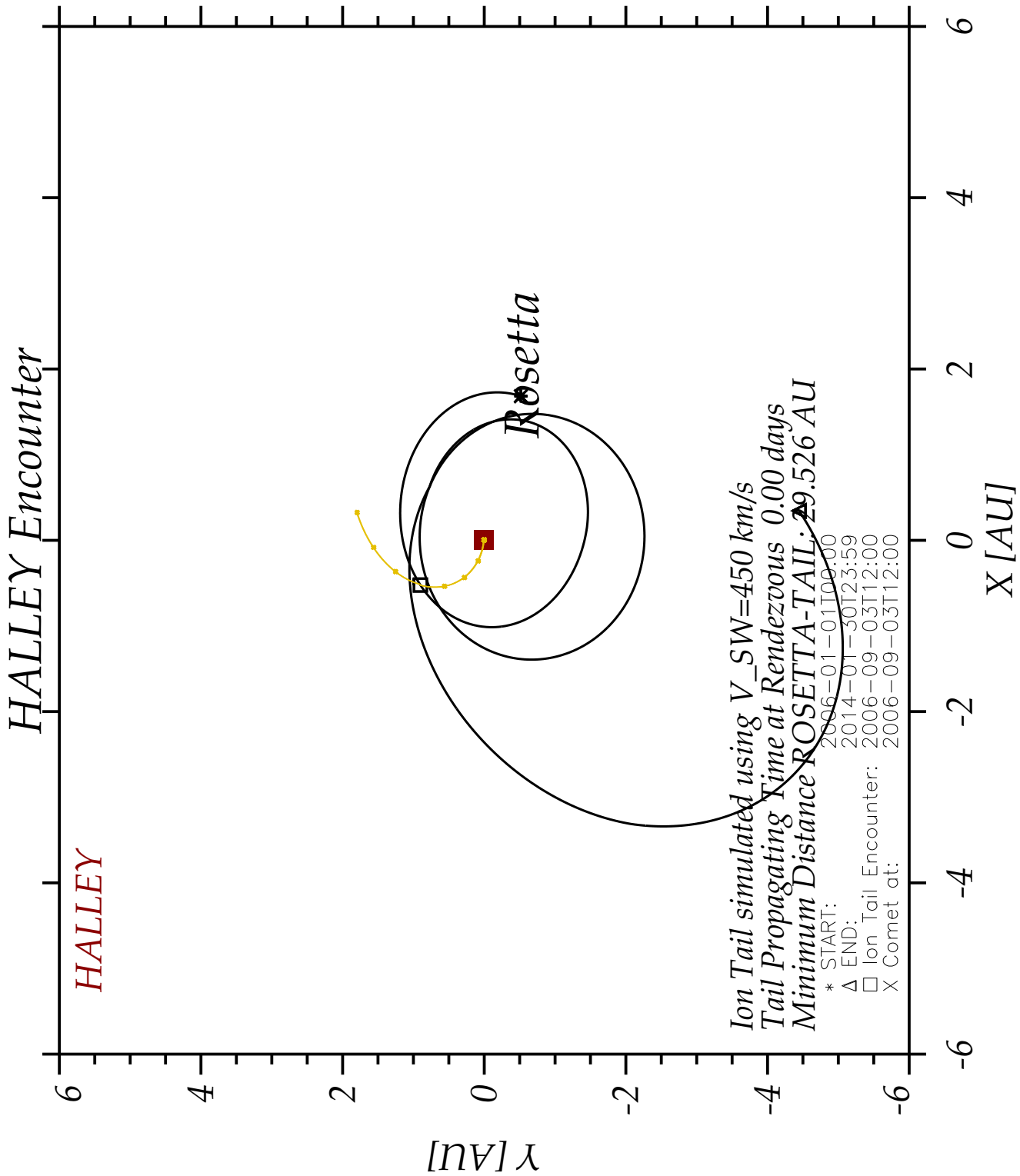


Figure 2: Overview: ROSETTA - HALLEY

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## 4 Comet 2P/ENCKE

<b>Comet: 2P/ENCKE</b>
<b>No Encounter below 0.2000AU</b>

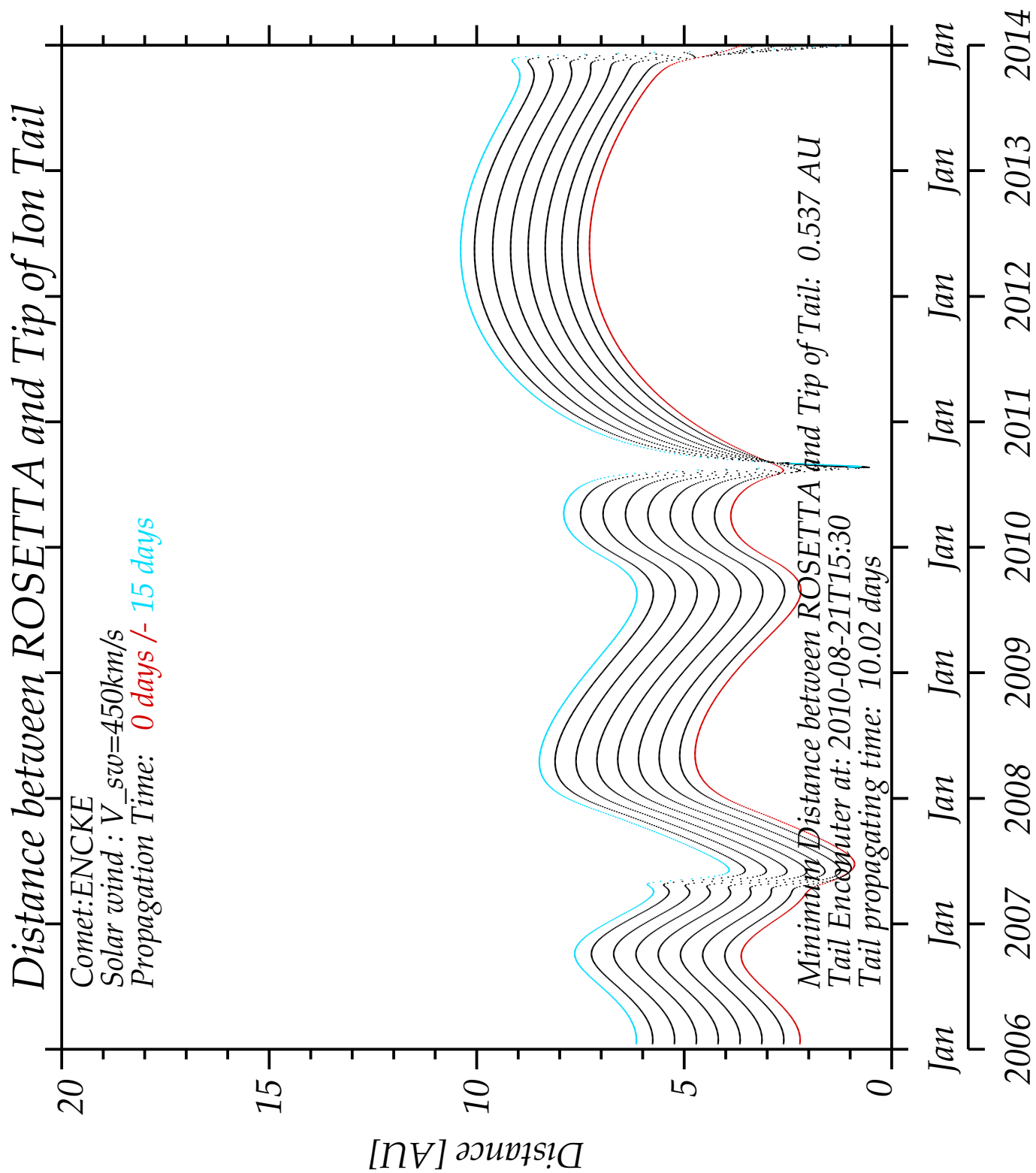


Figure 3: Minimum Distances: ROSETTA - ENCKE

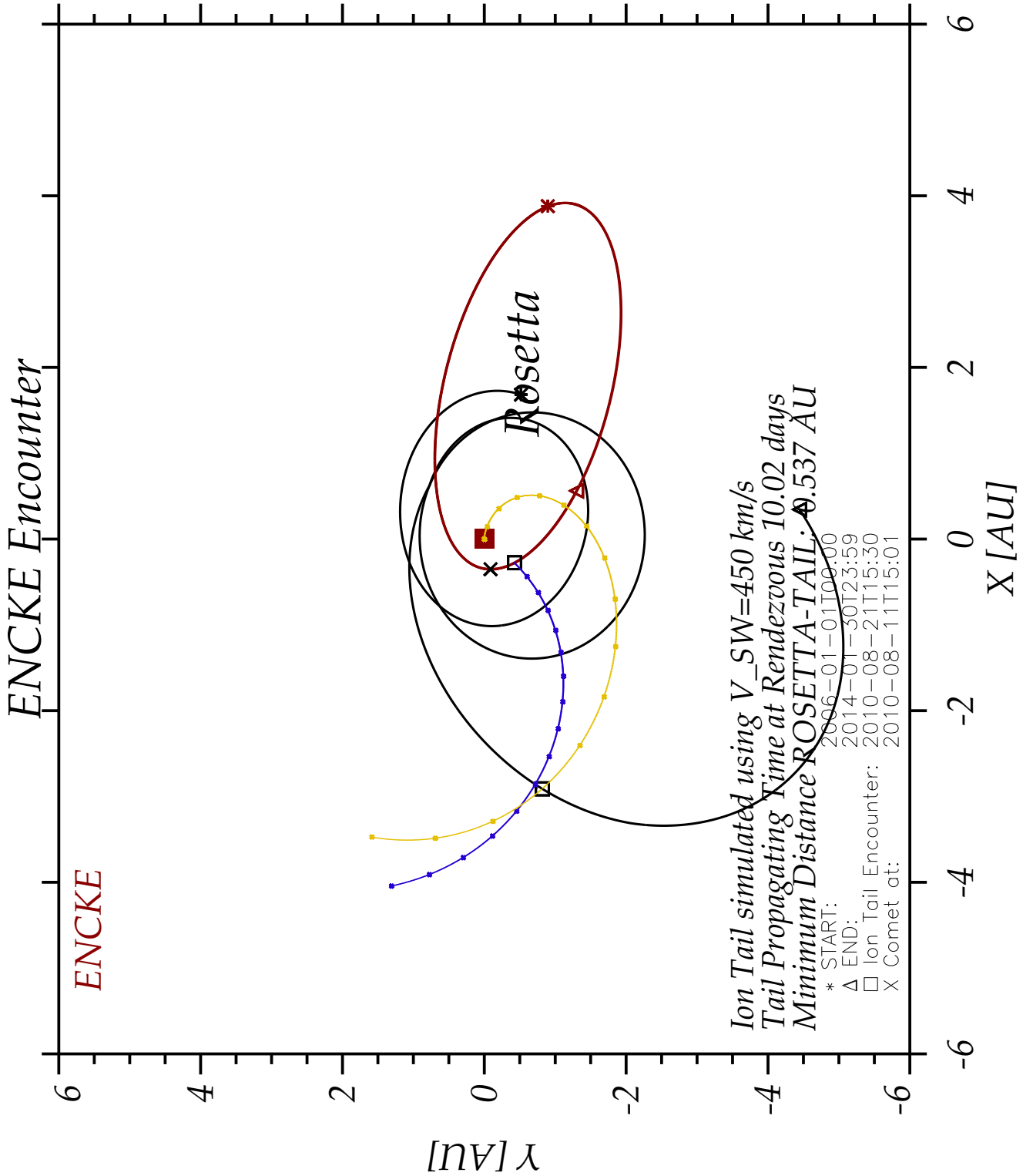


Figure 4: Overview: ROSETTA - ENCKE



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## 5 Comet 3D/BIELA

<b>Comet: 3D/BIELA</b>
<b>No Encounter below 0.2000AU</b>

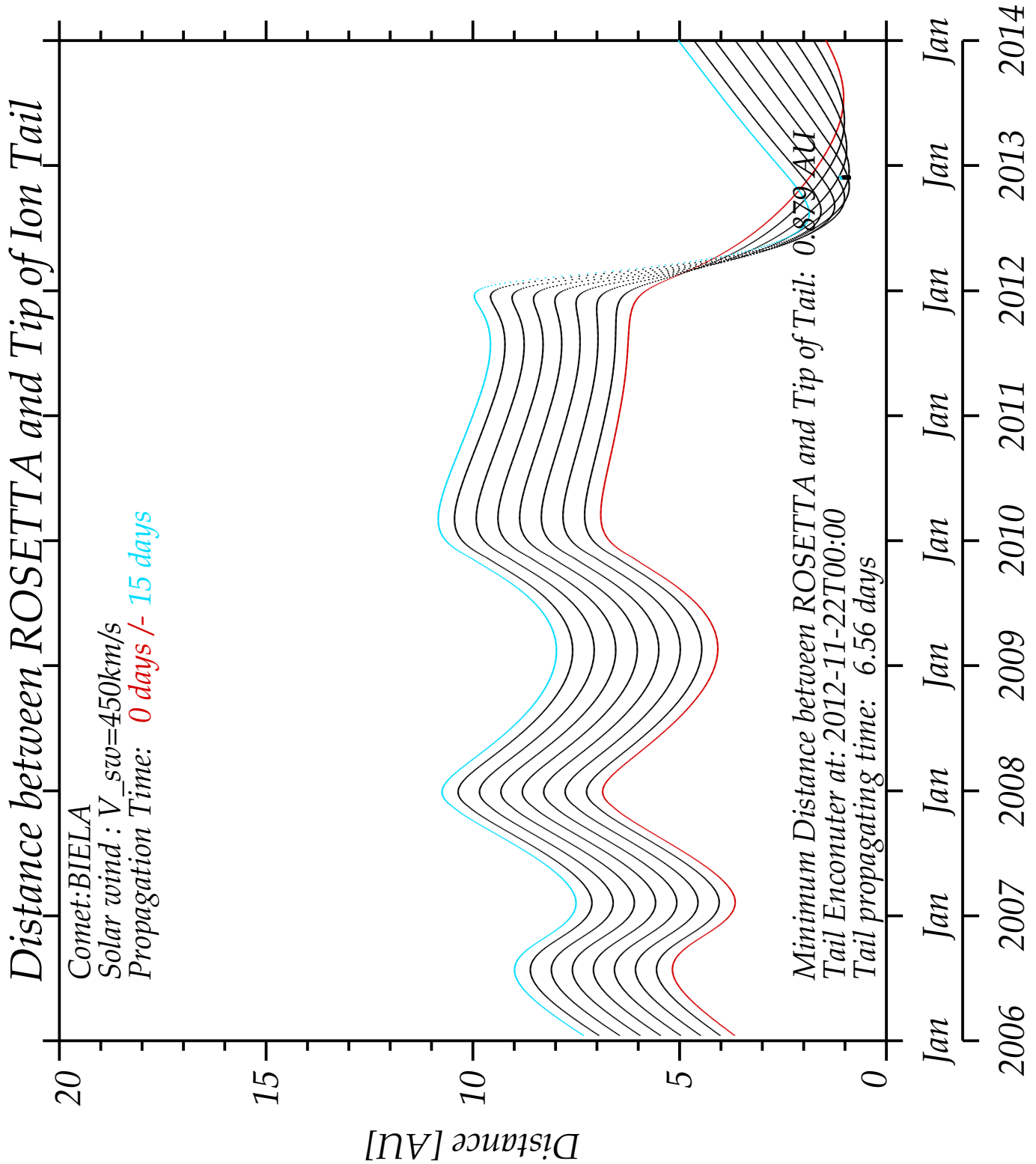


Figure 5: Minimum Distances: ROSETTA - BIELA

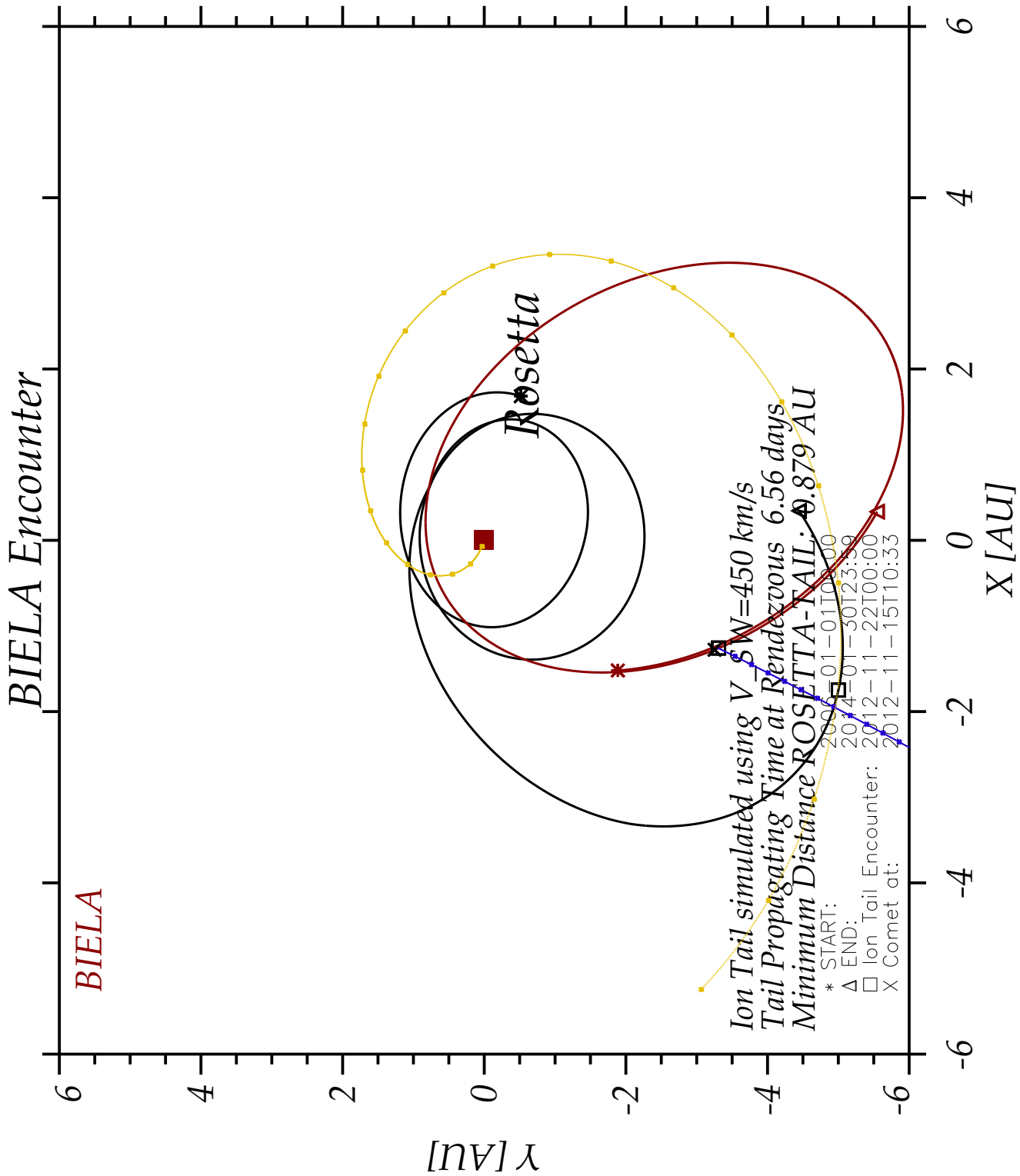


Figure 6: Overview: ROSETTA - BIELA

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## 6 Comet 4P/FAYE

<p><b>Comet: 4P/FAYE</b></p>
<p><b>No Encounter below 0.2000AU</b></p>

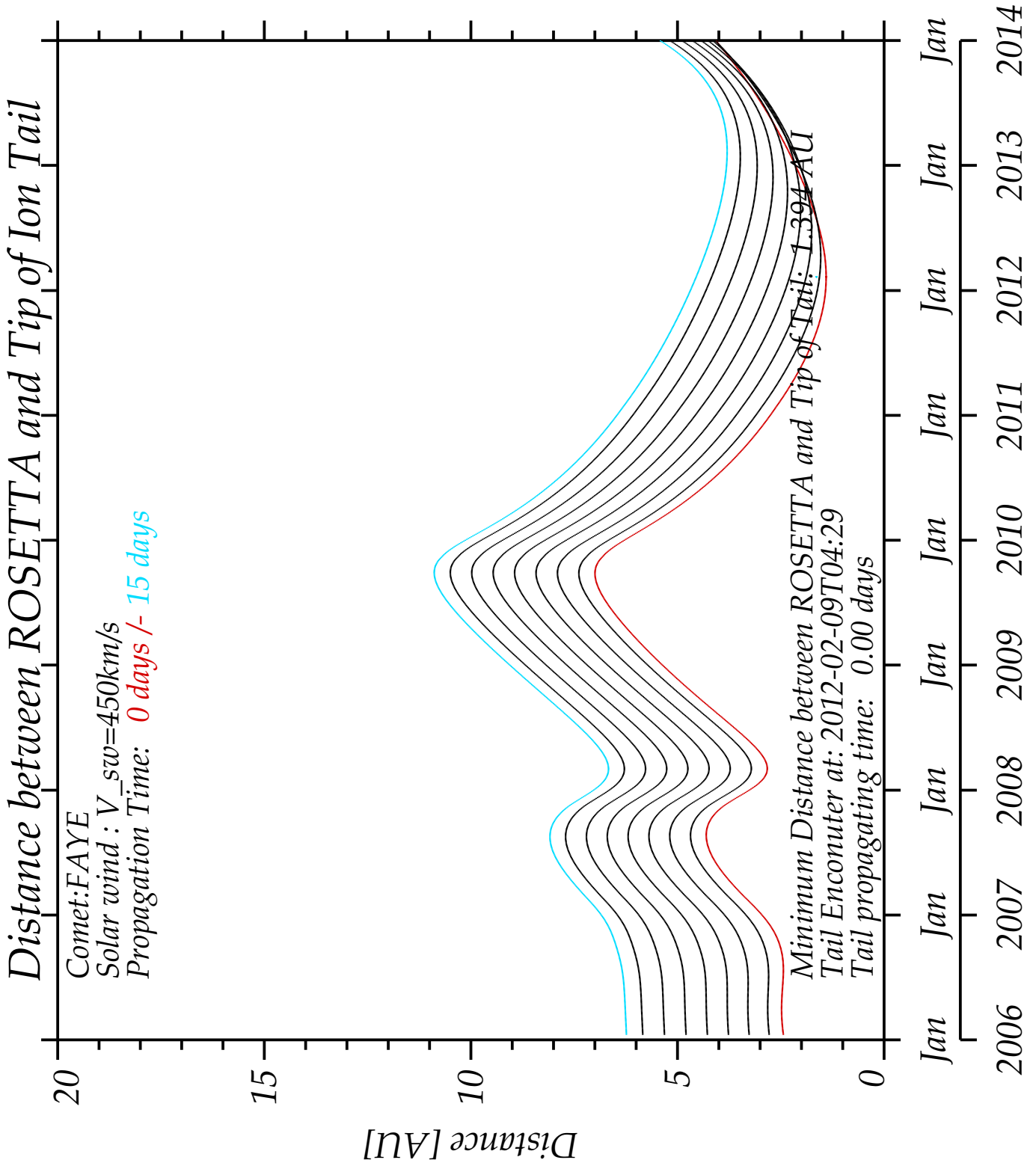


Figure 7: Minimum Distances: ROSETTA - FAYE

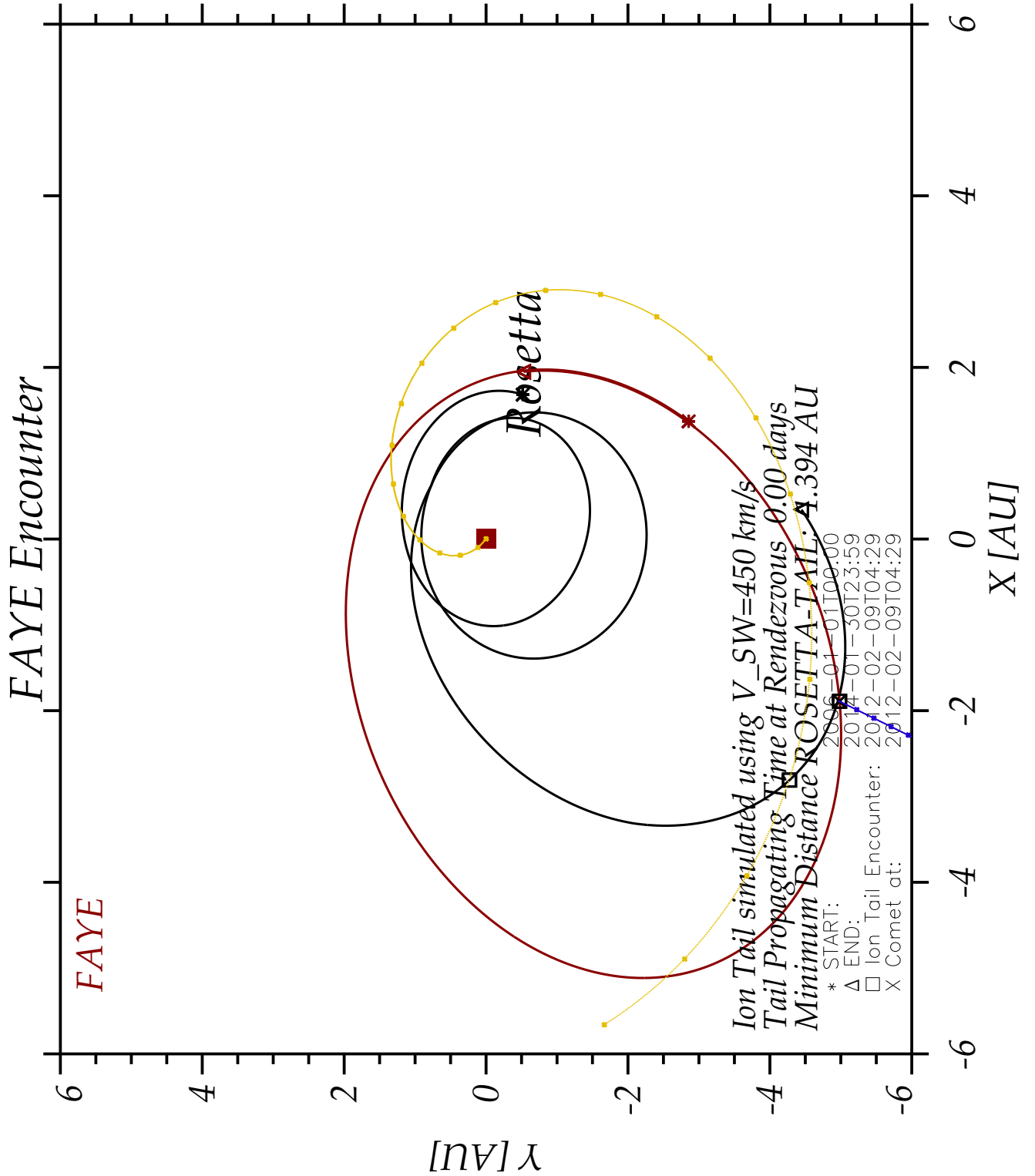


Figure 8: Overview: ROSETTA - FAYE

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## **7 Comet 5D/BROSEN**

<b>Comet: 5D/BROSEN</b>
<b>No Encounter below 0.2000AU</b>

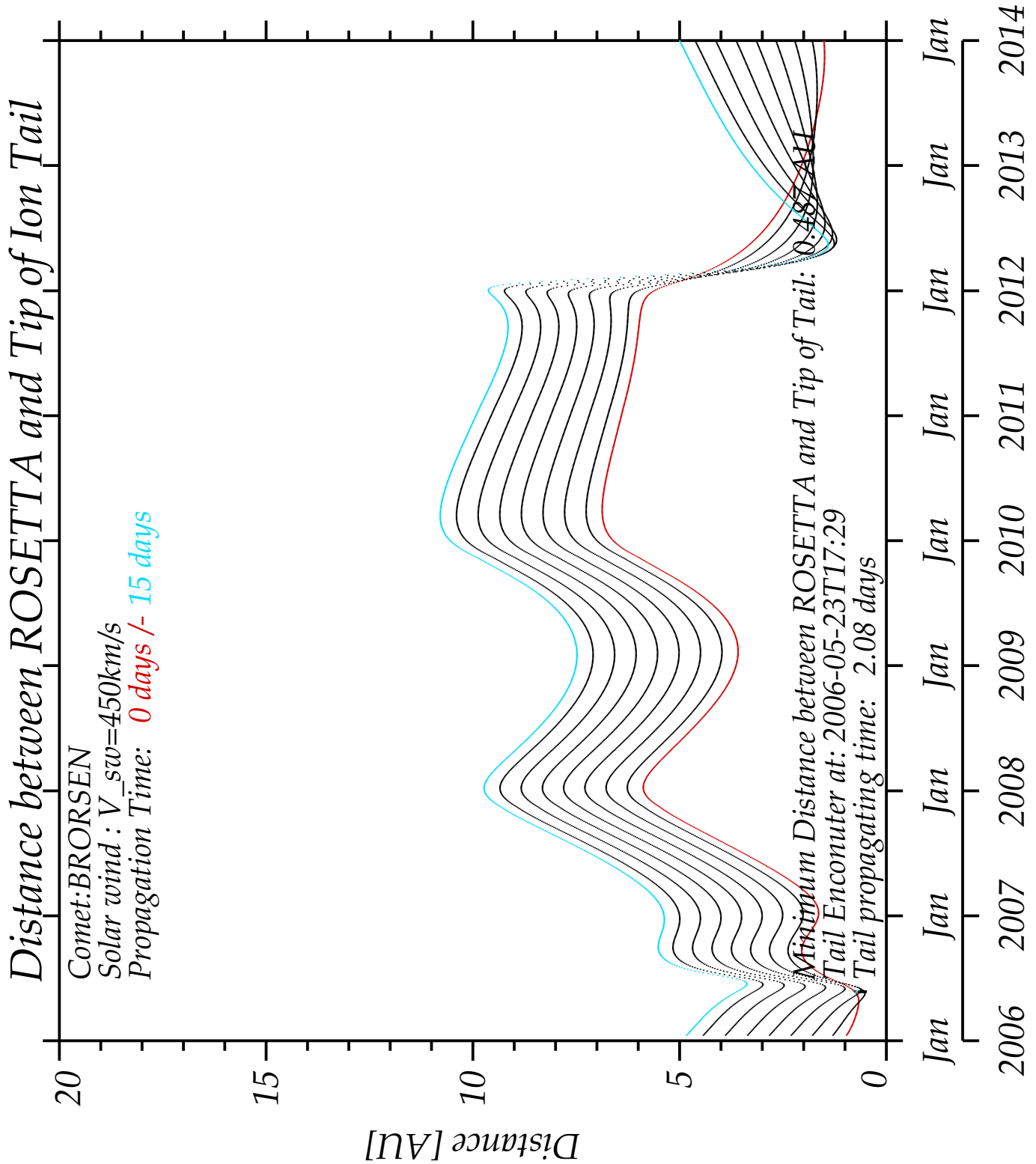


Figure 9: Minimum Distances: ROSETTA - BRORSEN



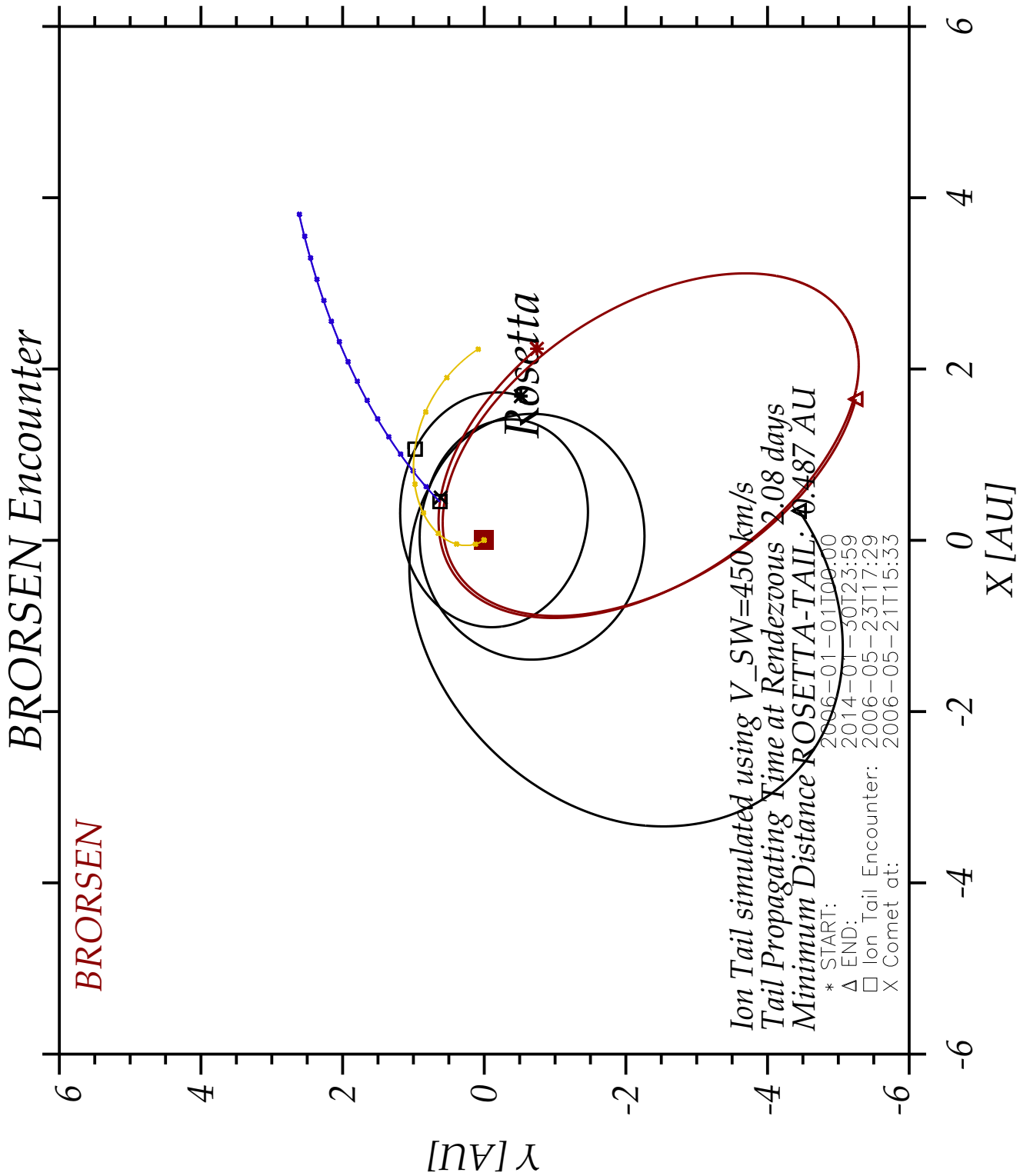


Figure 10: Overview: ROSETTA - BRORSEN

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## **8 Comet 6P/D'ARREST**

<b>Comet: 6P/D'ARREST</b>
<b>No Encounter below 0.2000AU</b>

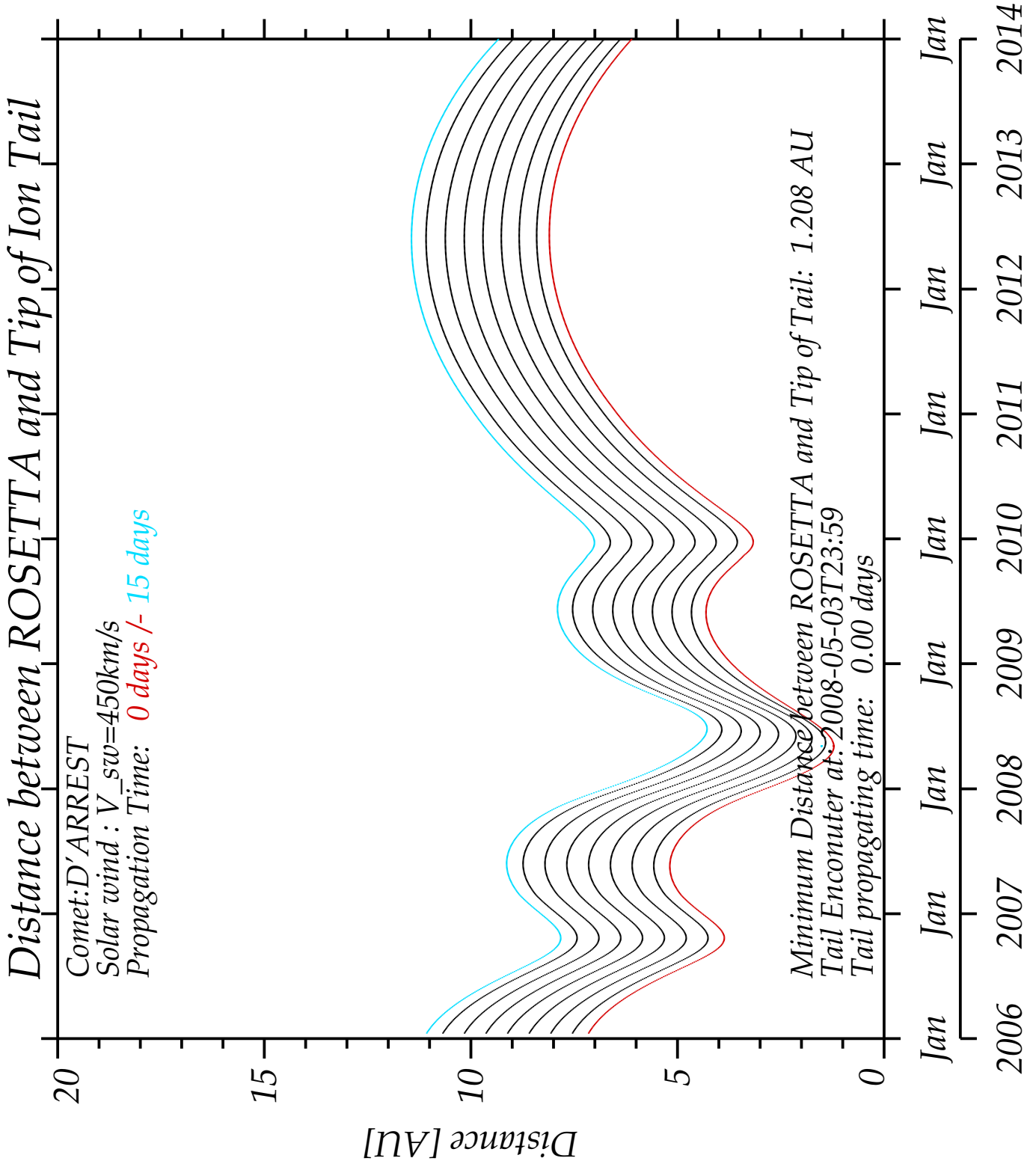


Figure 11: Minimum Distances: ROSETTA - D'ARREST

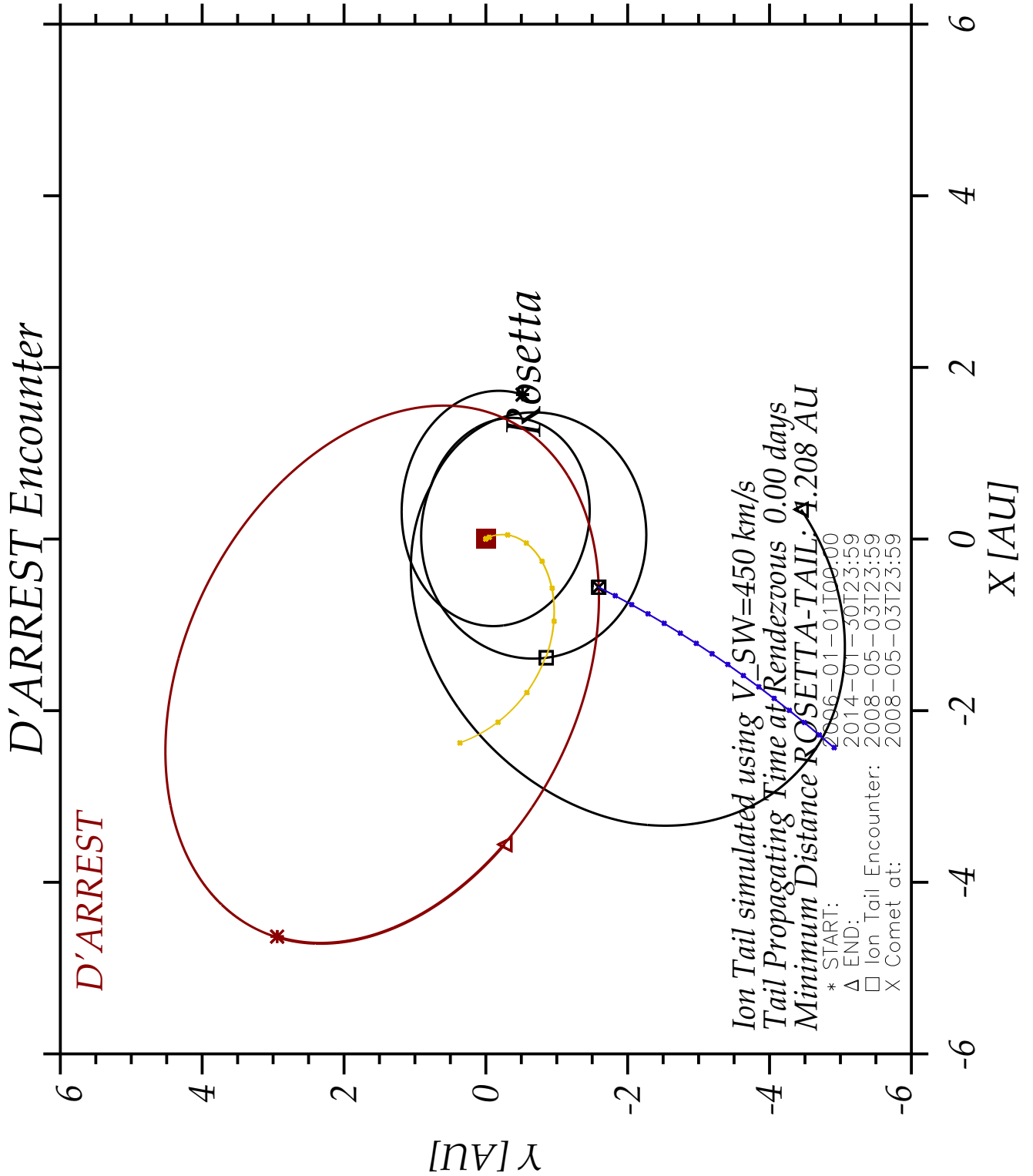


Figure 12: Overview: ROSETTA - D'ARREST

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## 9 Comet 7P/PONS-WINNECKE

<b>Comet: 7P/PONS-WINNECKE</b>
<b>No Encounter below 0.2000AU</b>

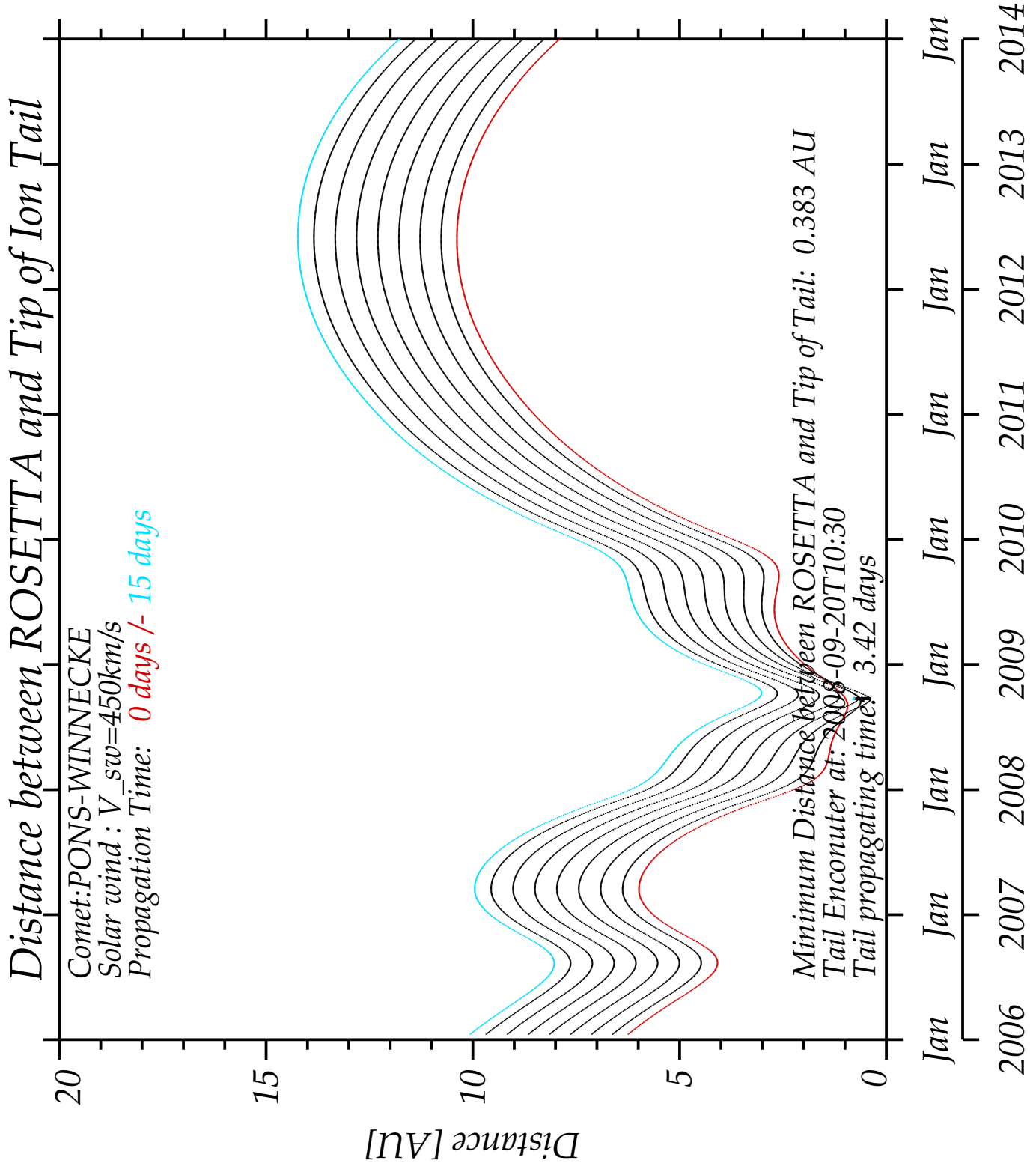


Figure 13: Minimum Distances: ROSETTA - PONS-WINNECKE

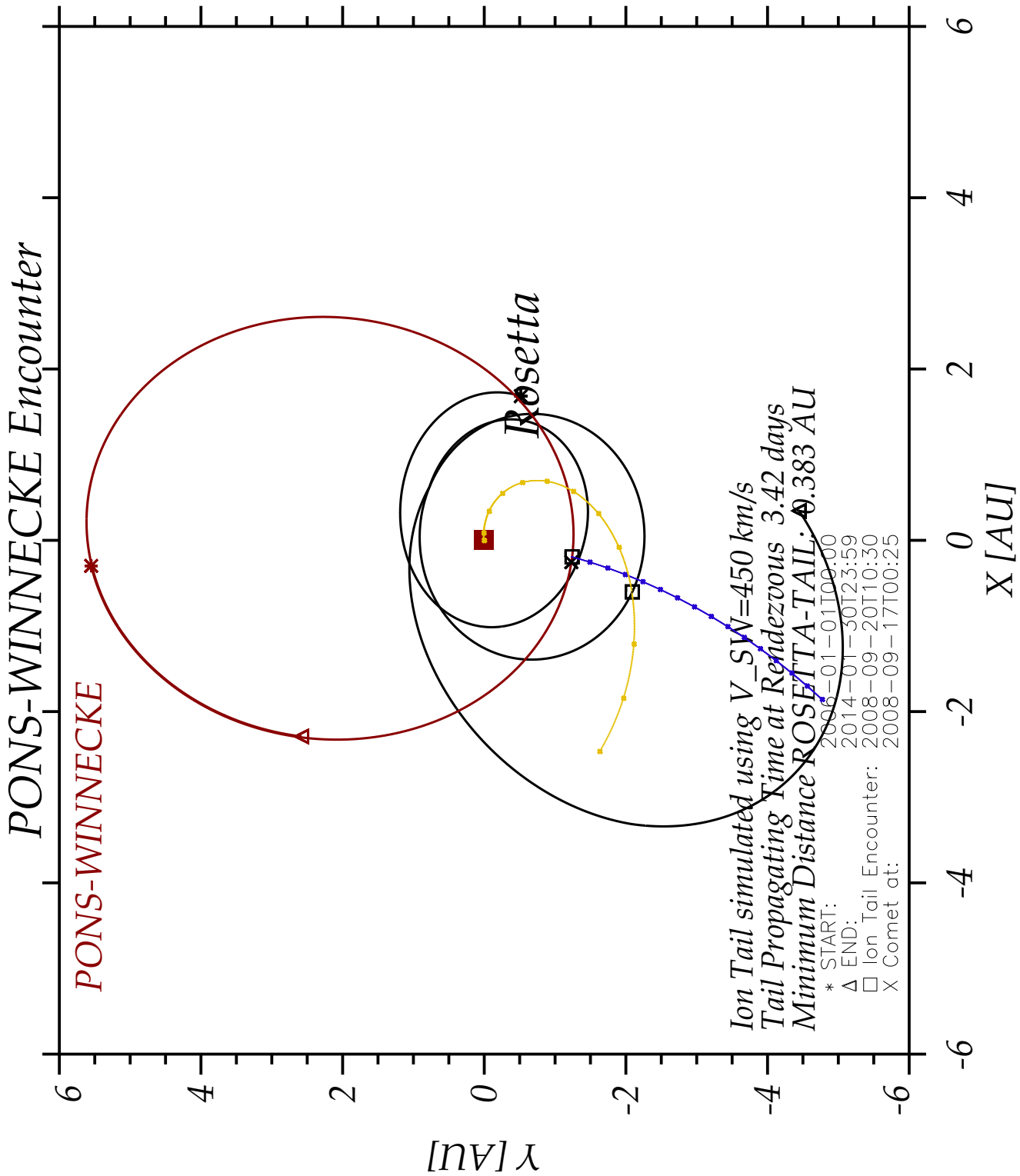


Figure 14: Overview: ROSETTA - PONS-WINNECKE

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## 10 Comet 8P/TUTTLE

<b>Comet: 8P/TUTTLE</b>
<b>No Encounter below 0.2000AU</b>



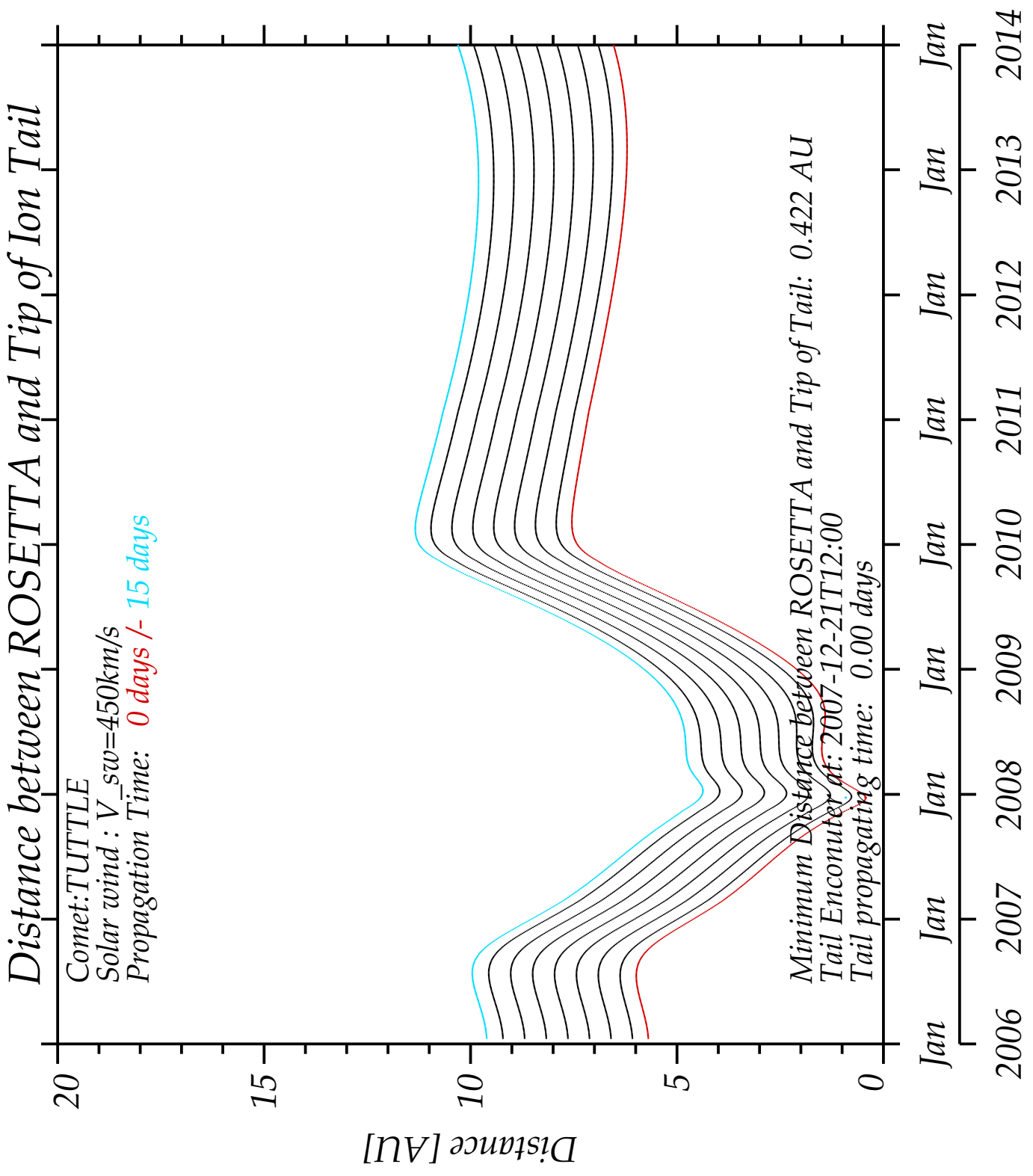


Figure 15: Minimum Distances: ROSETTA - TUTTLE

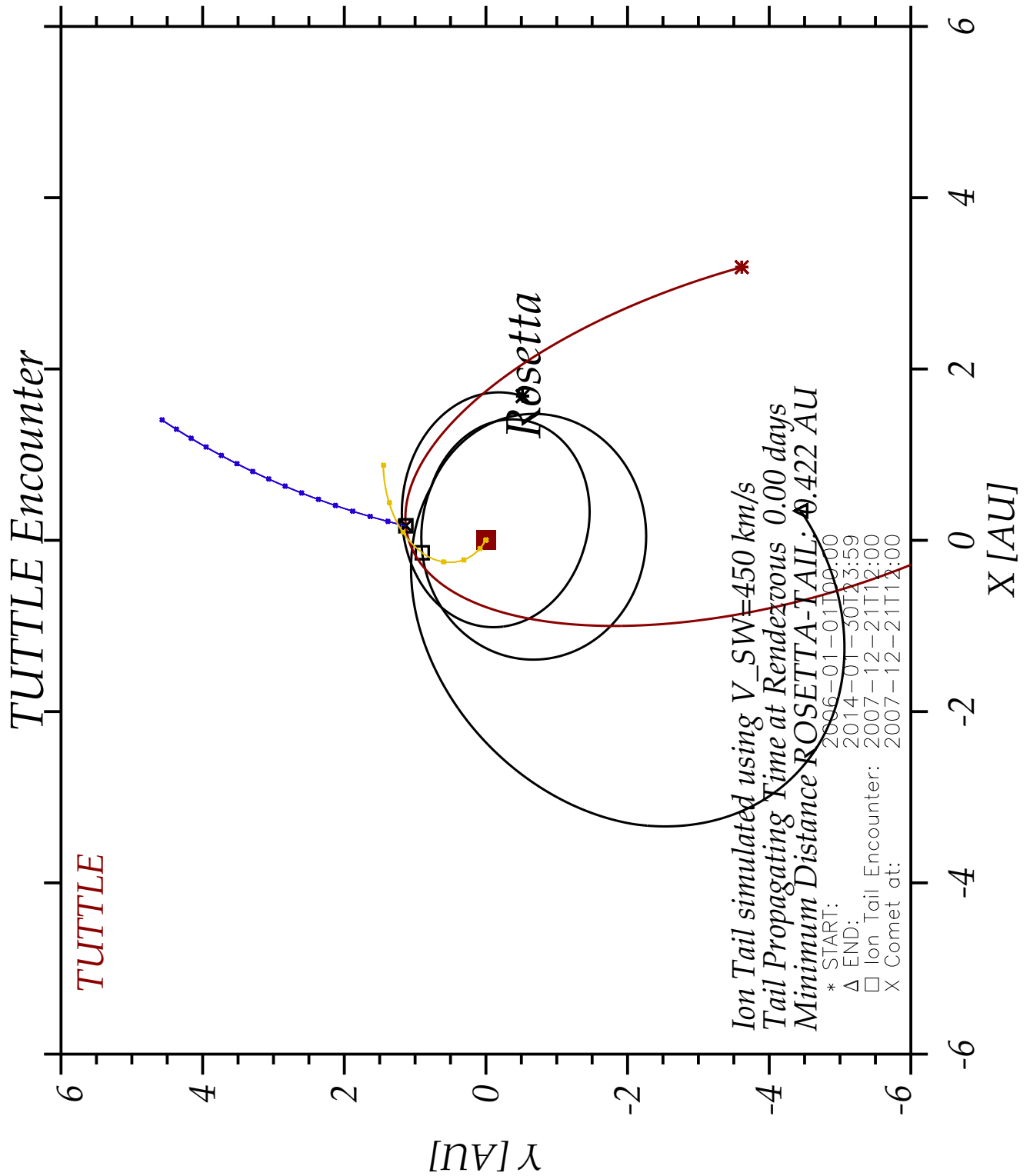


Figure 16: Overview: ROSETTA - TUTTLE

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## 11 Comet 9P/TEMPEL 1

<p><b>Comet: 9P/TEMPEL 1</b></p>
<p><b>No Encounter below 0.2000AU</b></p>

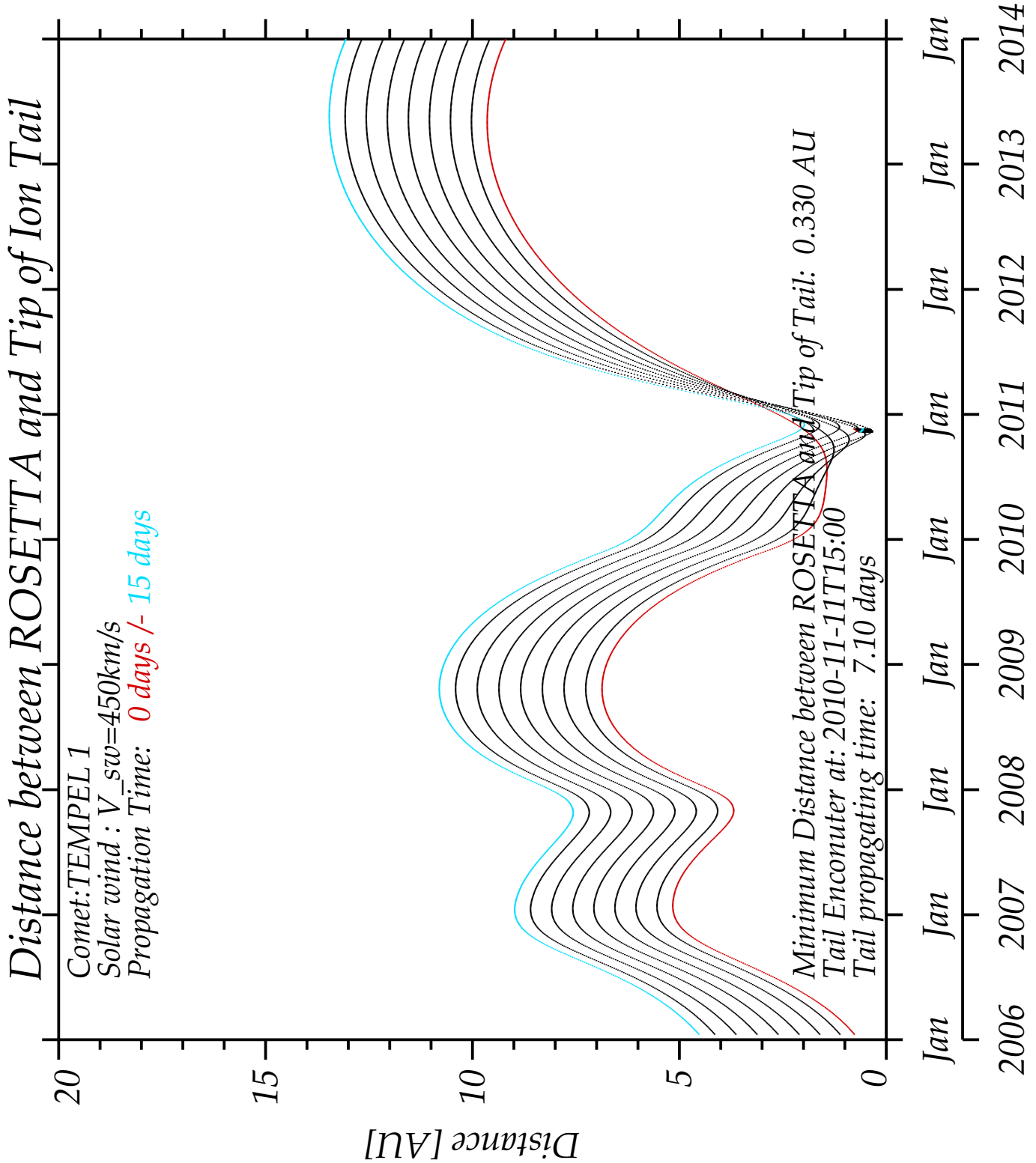


Figure 17: Minimum Distances: ROSETTA - TEMPEL 1

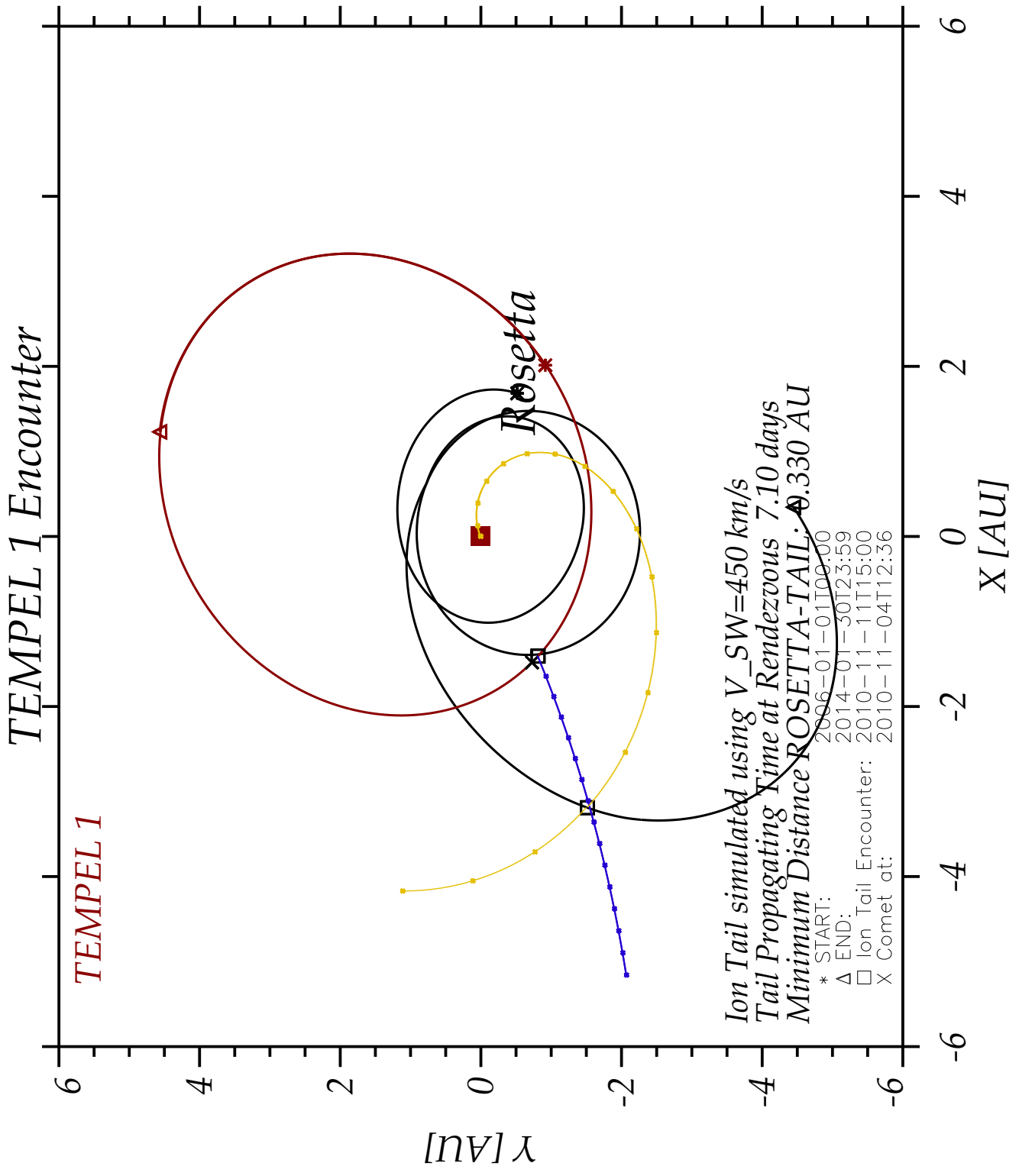


Figure 18: Overview: ROSETTA - TEMPEL 1

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## **12 Comet 10P/TEMPEL 2**

<b>Comet: 10P/TEMPEL 2</b>
<b>No Encounter below 0.2000AU</b>

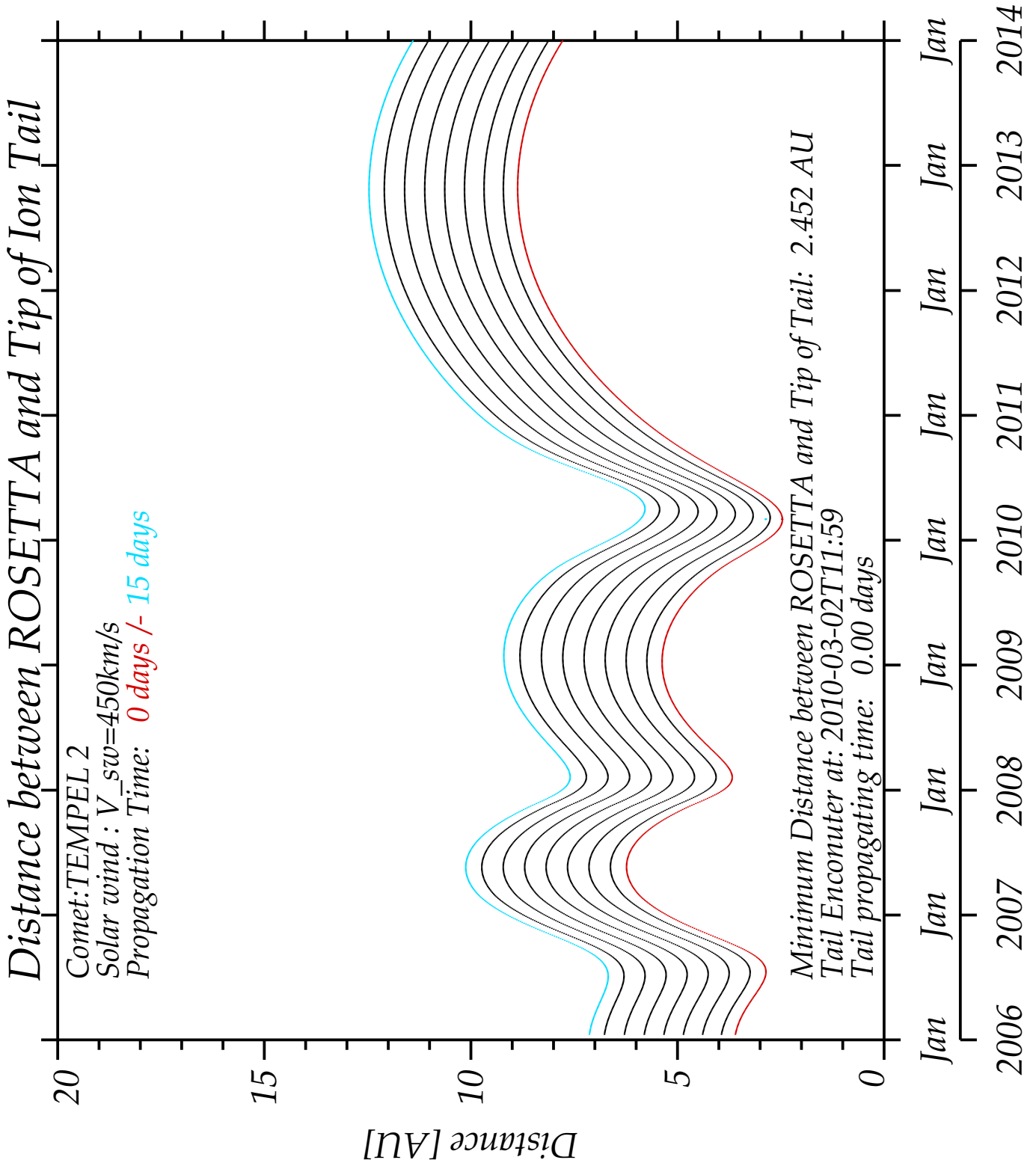


Figure 19: Minimum Distances: ROSETTA - TEMPEL 2

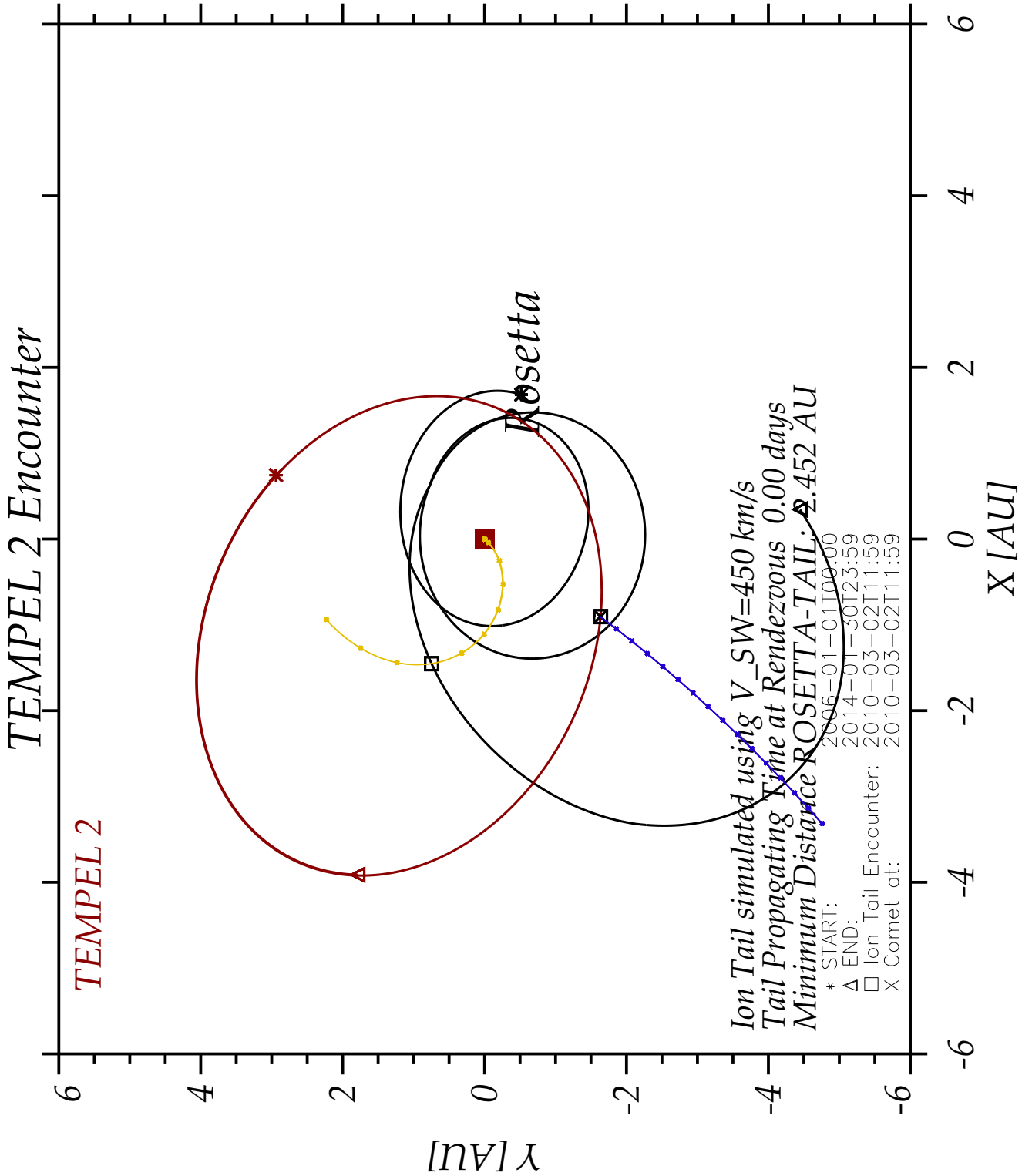


Figure 20: Overview: ROSETTA - TEMPEL 2



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### 13 Comet 11P/TEMPEL-SWIFT-LINEAR

<b>Comet:</b>	<b>11P/TEMPEL-SWIFT-LINEAR</b>				
<b>Date of Encounter:</b>	<b>2012-02-09T23:59</b>				
<b>Minimum Distance</b>					
<b>ROSETTA/Ion Tail:</b>	<b>0.0650</b>				<b>AU</b>
<b>Position of ROSETTA</b>	<b>-2.8067</b>	<b>-4.2800</b>	<b>-0.1261</b>	<b>5.1197</b>	<b>AU,[x,y,z],r</b>
<b>Position of COMET:</b>	<b>-2.8069</b>	<b>-4.3201</b>	<b>-0.0751</b>	<b>5.1524</b>	<b>AU,[x,y,z],r</b>
<b>Velocity of ROSETTA</b>	<b>5.09</b>	<b>-6.71</b>	<b>-0.96</b>	<b>8.48</b>	<b>km/s,[vx,vy,vz],v</b>
<b>Velocity of COMET:</b>	<b>8.54</b>	<b>-2.88</b>	<b>2.14</b>	<b>9.26</b>	<b>km/s,[vx,vy,vz],v</b>
<b>Tail Intersection Angle:</b>	<b>70.2</b>				<b>deg</b>
<b>Velocity of ROSETTA</b>					
<b>normal to Tail:</b>	<b>7.98</b>				<b>km/s</b>
<b>Progagting Time</b>					
<b>of Tail</b>	<b>0.000</b>				<b>days</b>

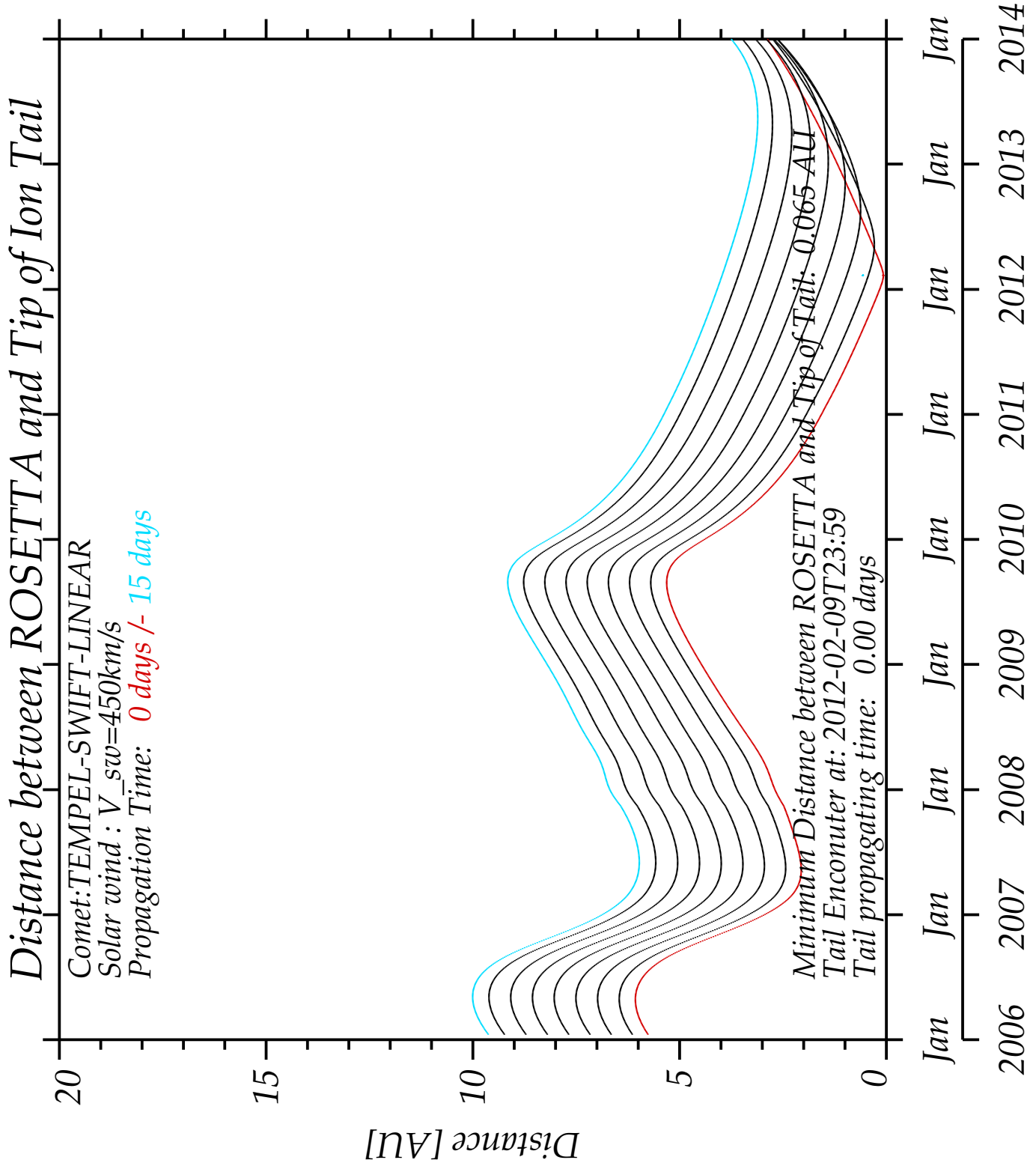


Figure 21: Minimum Distances: ROSETTA - TEMPEL-SWIFT-LINEAR

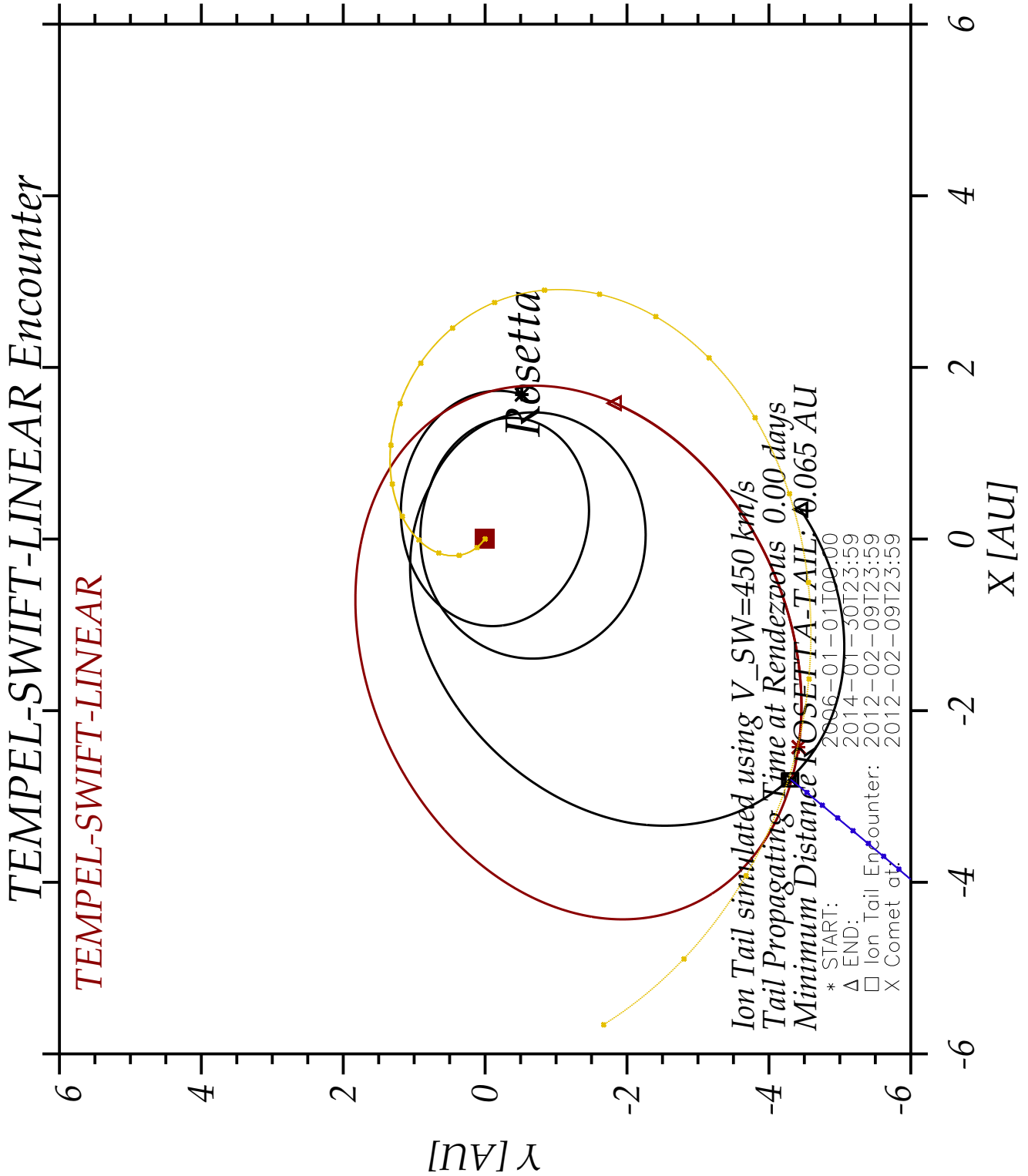


Figure 22: Overview: ROSETTA - TEMPEL-SWIFT-LINEAR

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## 14 Comet 12P/PONS-BROOKS

<b>Comet: 12P/PONS-BROOKS</b>
<b>No Encounter below 0.2000AU</b>

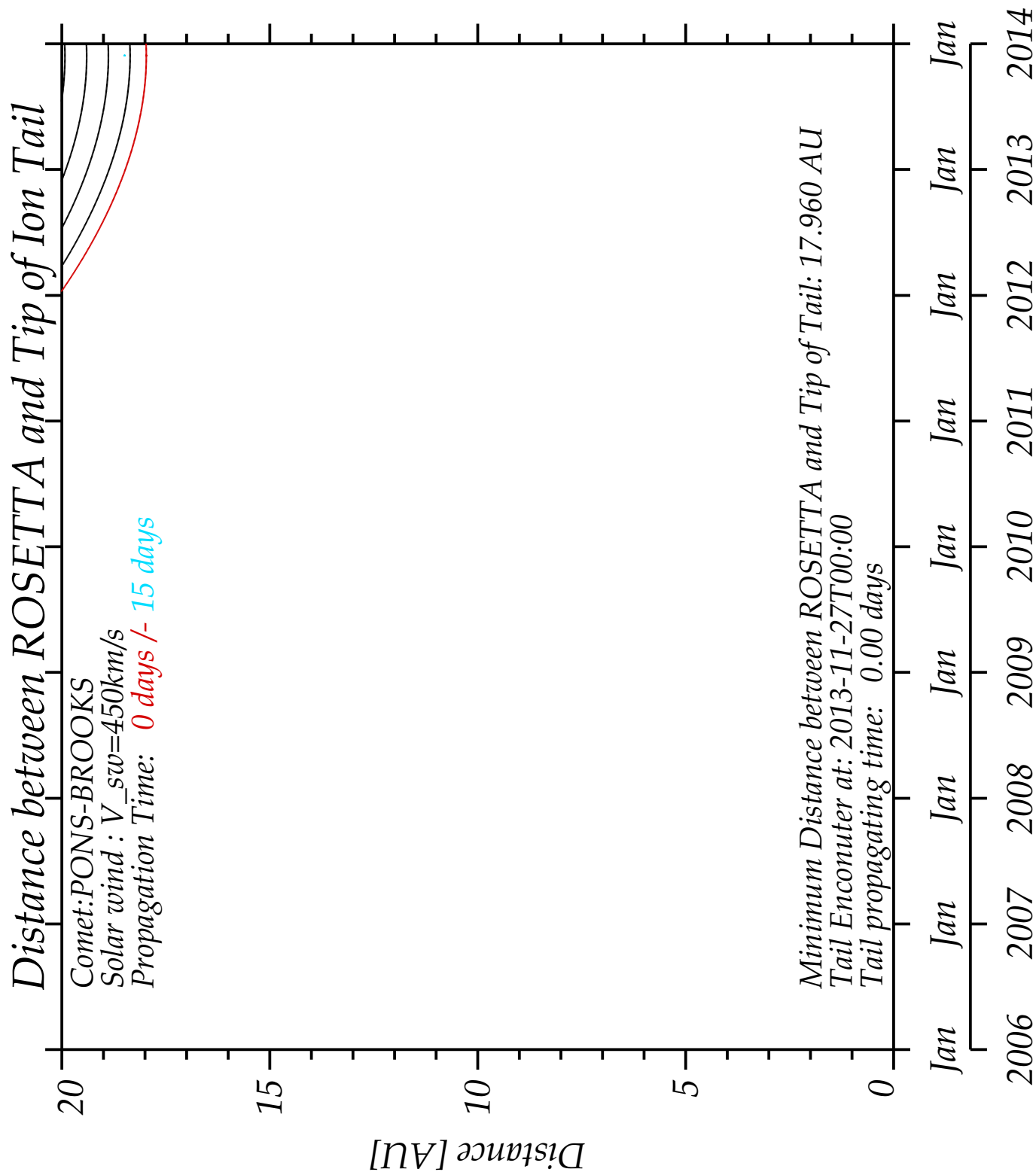


Figure 23: Minimum Distances: ROSETTA - PONS-BROOKS

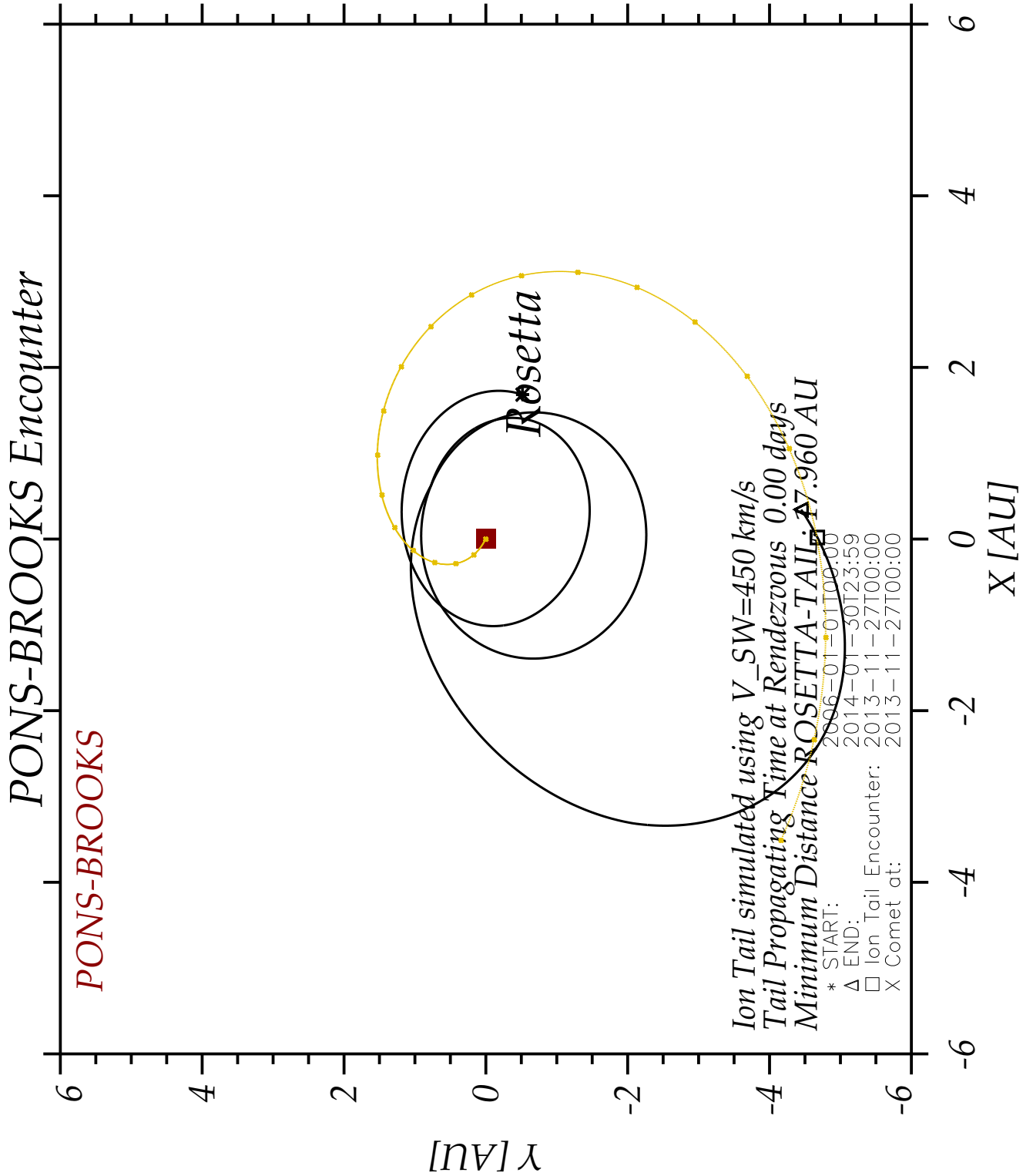


Figure 24: Overview: ROSETTA - PONS-BROOKS

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## 15 Comet 13P/OLBERS

<b>Comet: 13P/OLBERS</b>
<b>No Encounter below 0.2000AU</b>

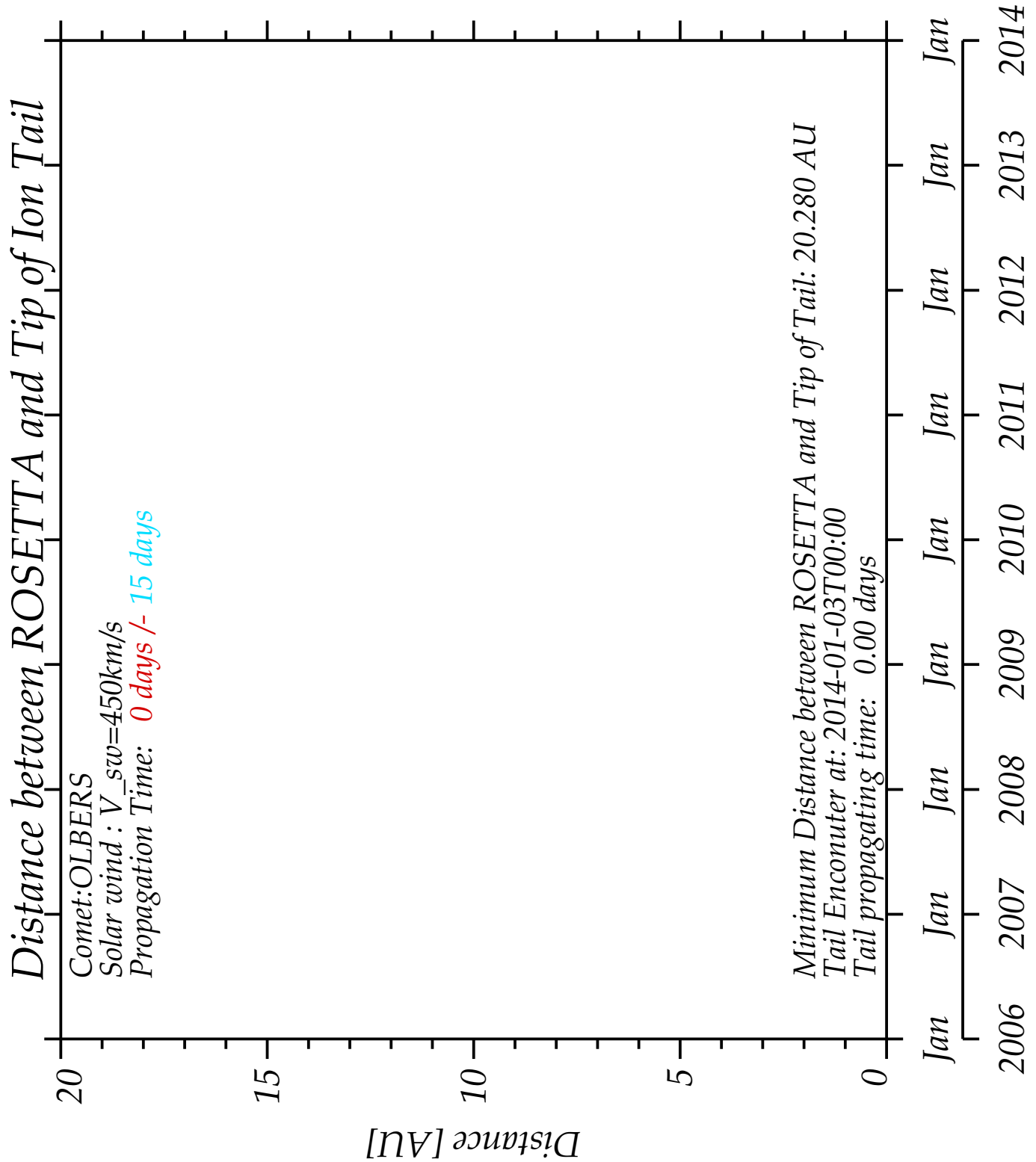


Figure 25: Minimum Distances: ROSETTA - OLBERS



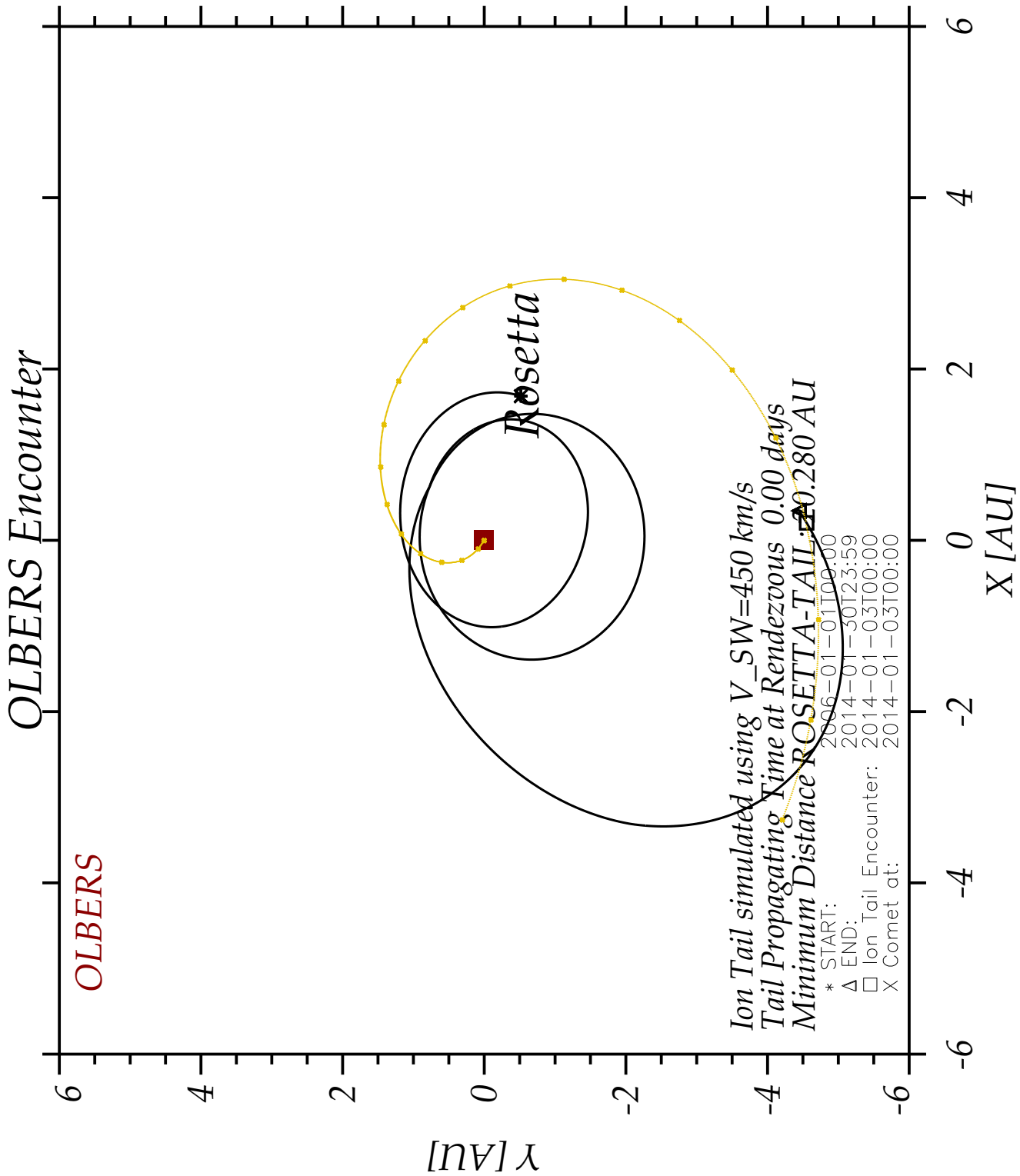


Figure 26: Overview: ROSETTA - OLBERS

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## 16 Comet 14P/WOLF

<b>Comet: 14P/WOLF</b>
<b>No Encounter below 0.2000AU</b>

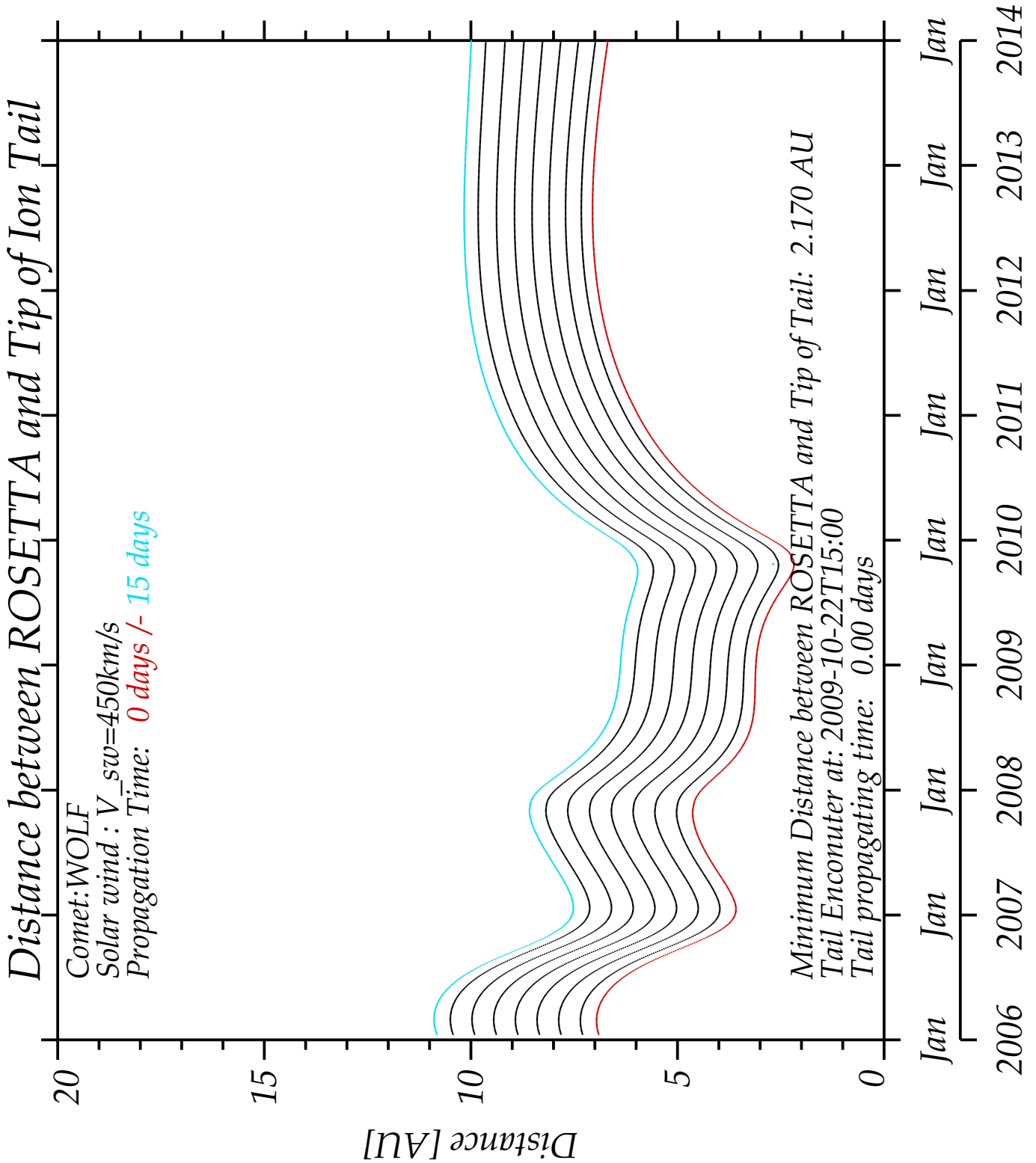


Figure 27: Minimum Distances: ROSETTA - WOLF

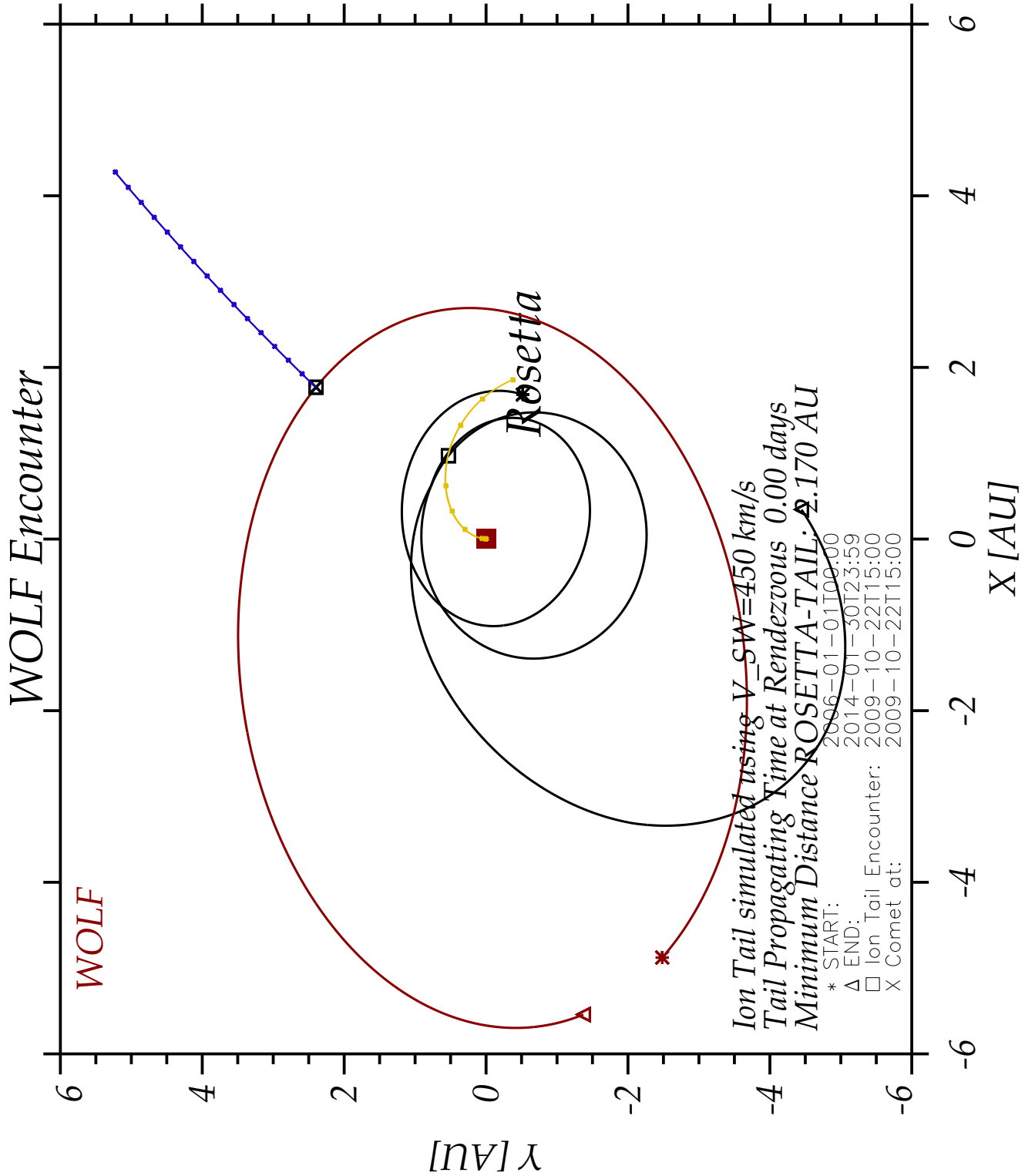


Figure 28: Overview: ROSETTA - WOLF

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## 17 Comet 15P/FINLAY

<b>Comet: 15P/FINLAY</b>
<b>No Encounter below 0.2000AU</b>

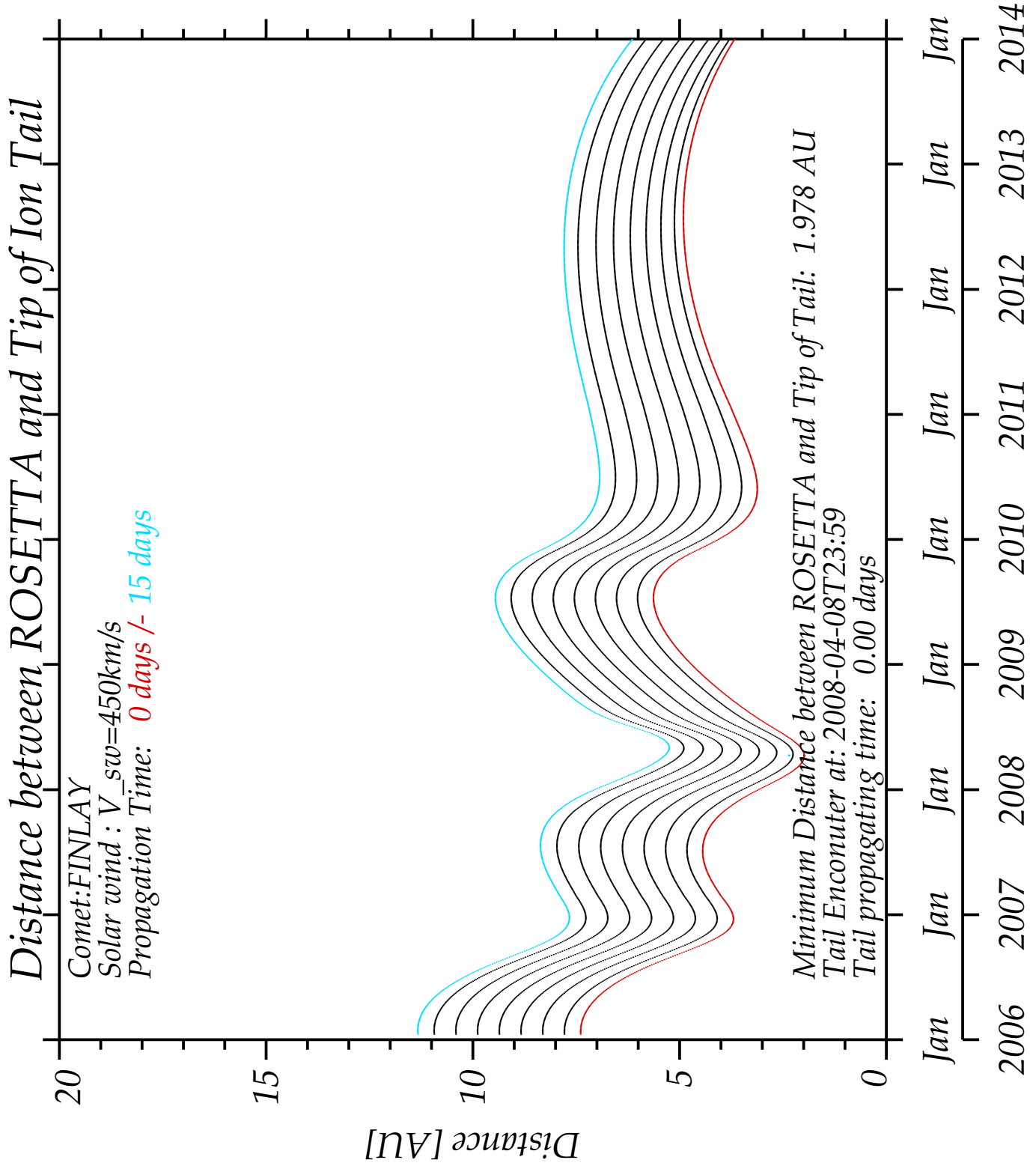


Figure 29: Minimum Distances: ROSETTA - FINLAY

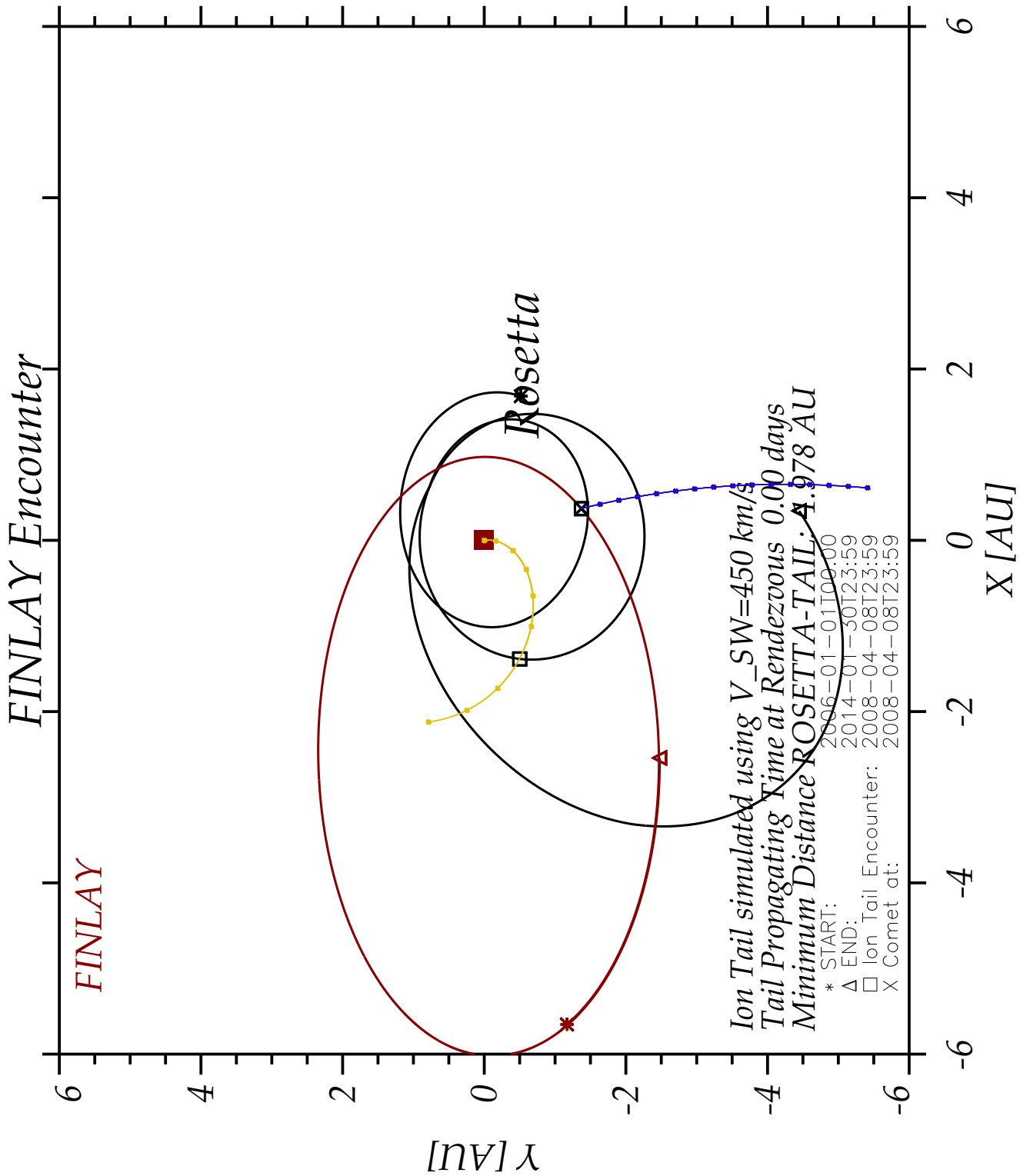


Figure 30: Overview: ROSETTA - FINLAY

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## 18 Comet 16P/BROOKS 2

<b>Comet: 16P/BROOKS 2</b>
<b>No Encounter below 0.2000AU</b>



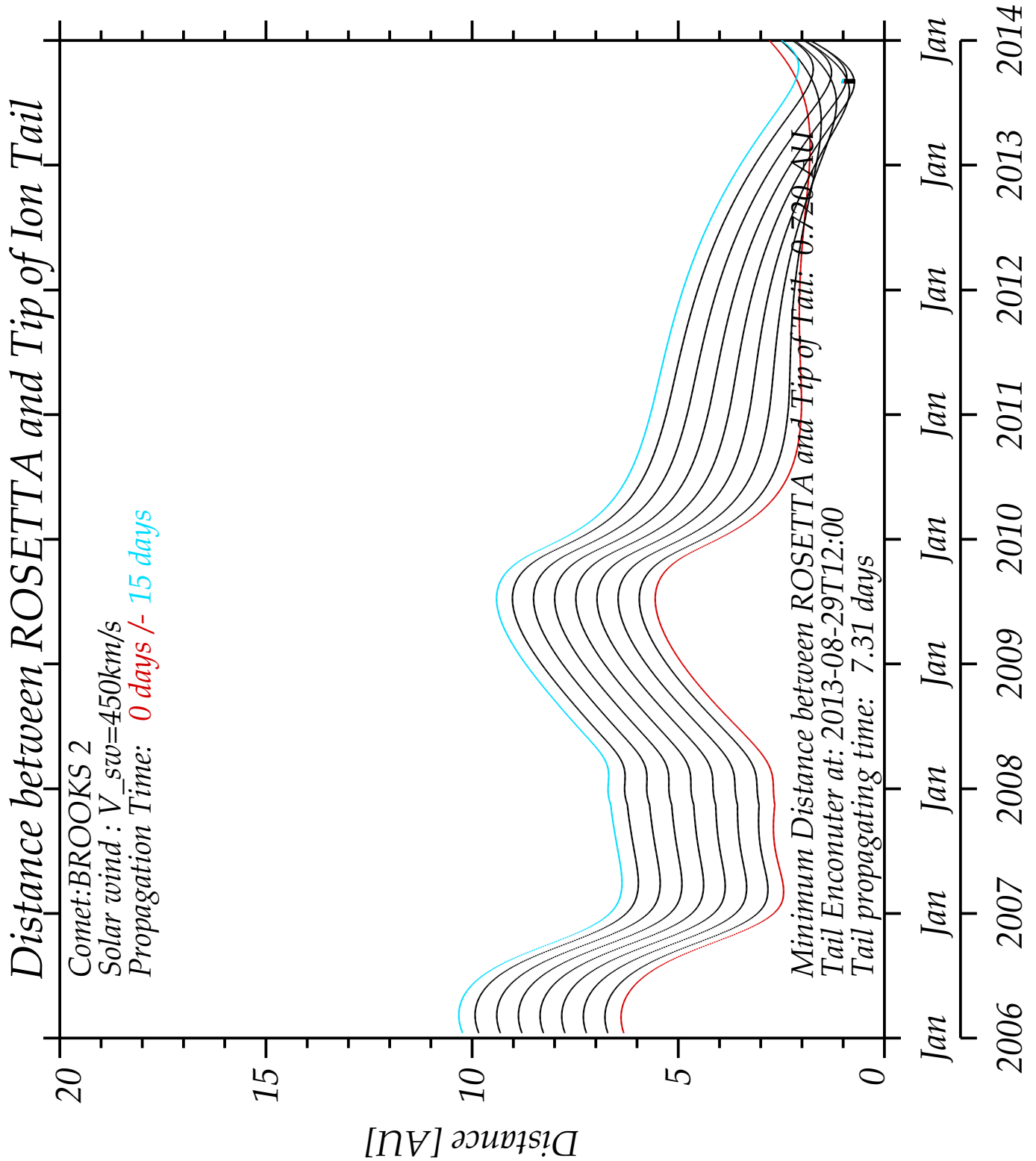


Figure 31: Minimum Distances: ROSETTA - BROOKS 2

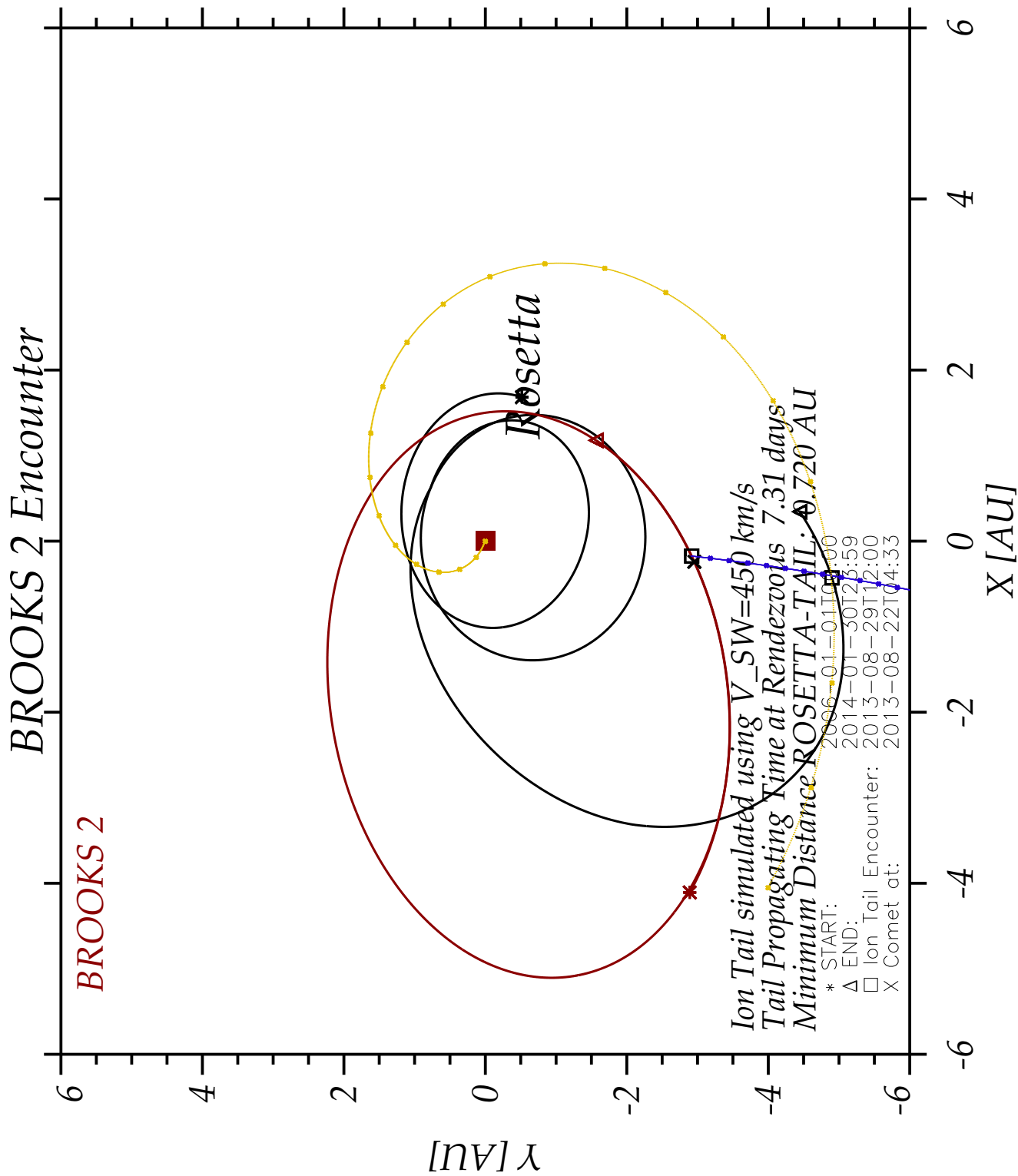


Figure 32: Overview: ROSETTA - BROOKS 2

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## 19 Comet 17P/HOLMES

<b>Comet: 17P/HOLMES</b>
<b>No Encounter below 0.2000AU</b>

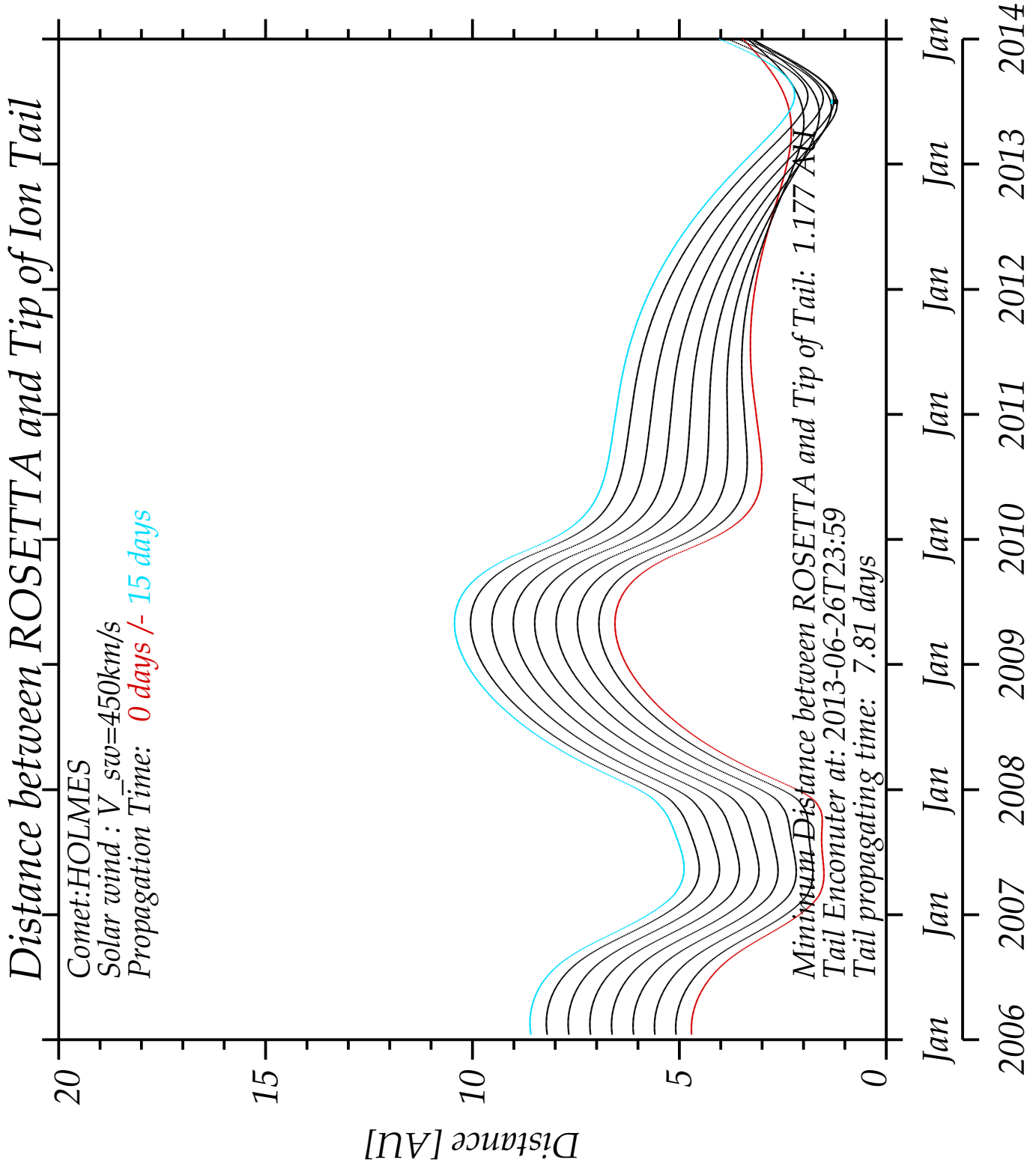


Figure 33: Minimum Distances: ROSETTA - HOLMES

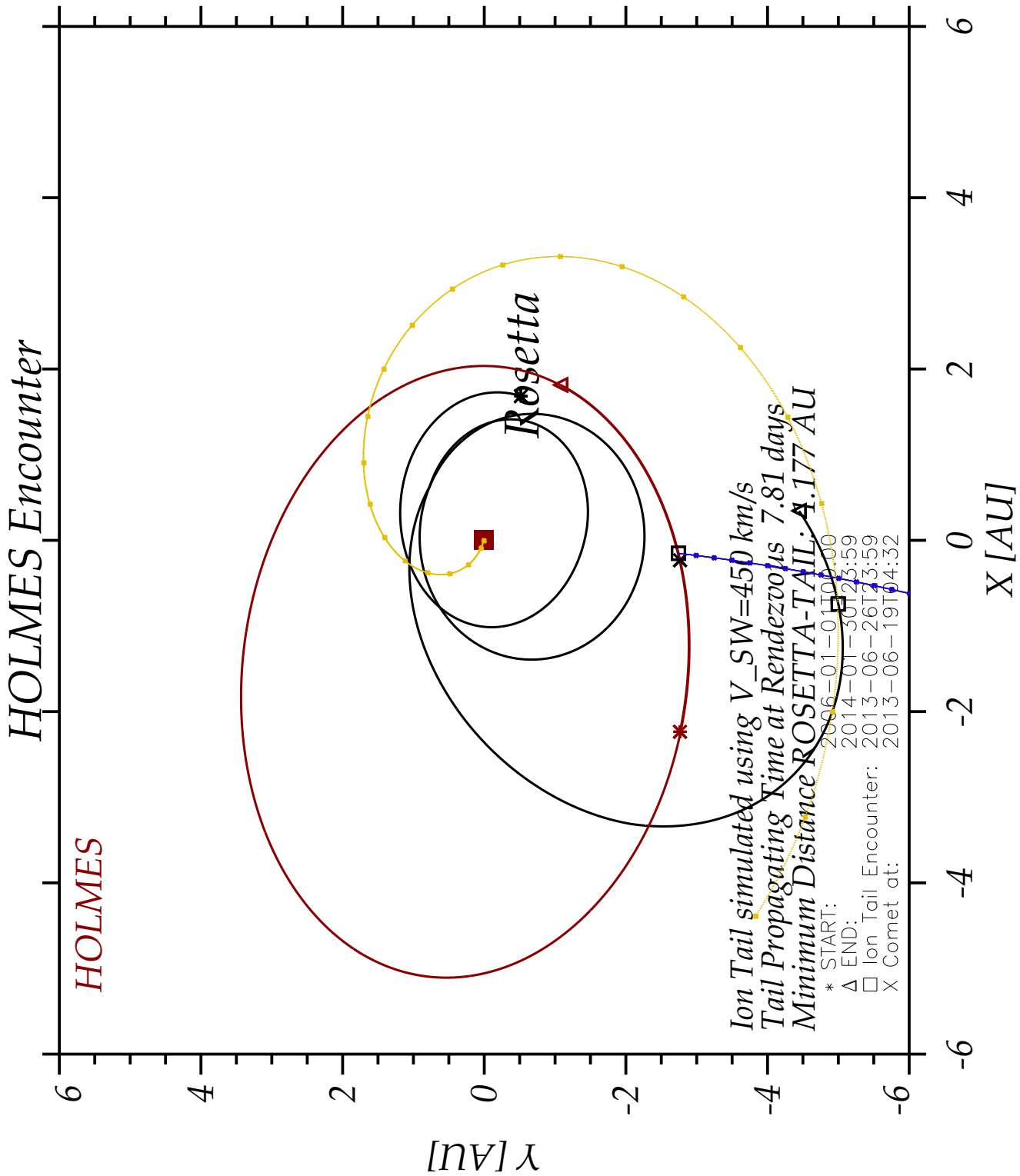


Figure 34: Overview: ROSETTA - HOLMES

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## 20 Comet 18D/PERRINE-MRKOS

<b>Comet: 18D/PERRINE-MRKOS</b>
<b>No Encounter below 0.2000AU</b>

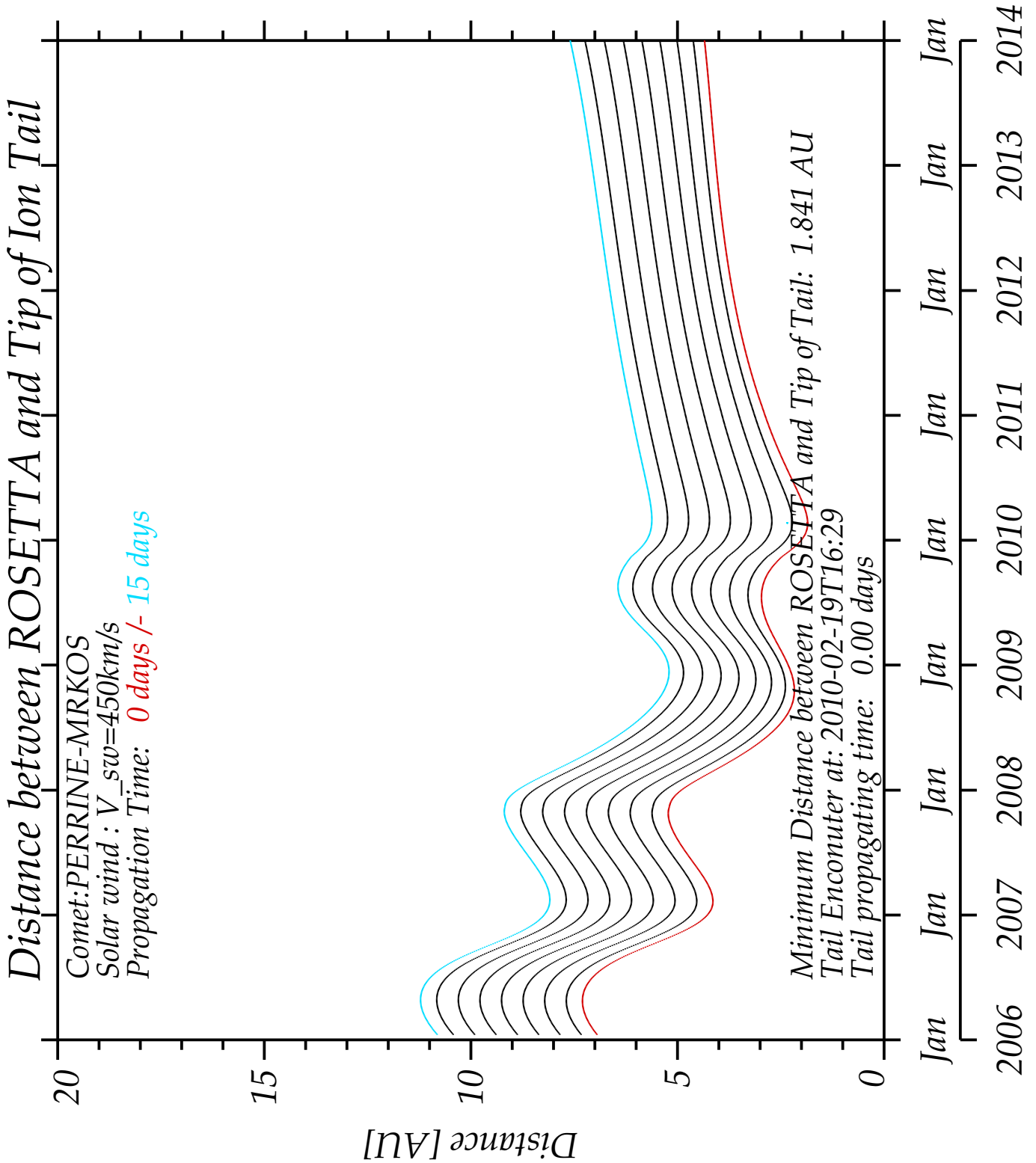


Figure 35: Minimum Distances: ROSETTA - PERRINE-MRKOS

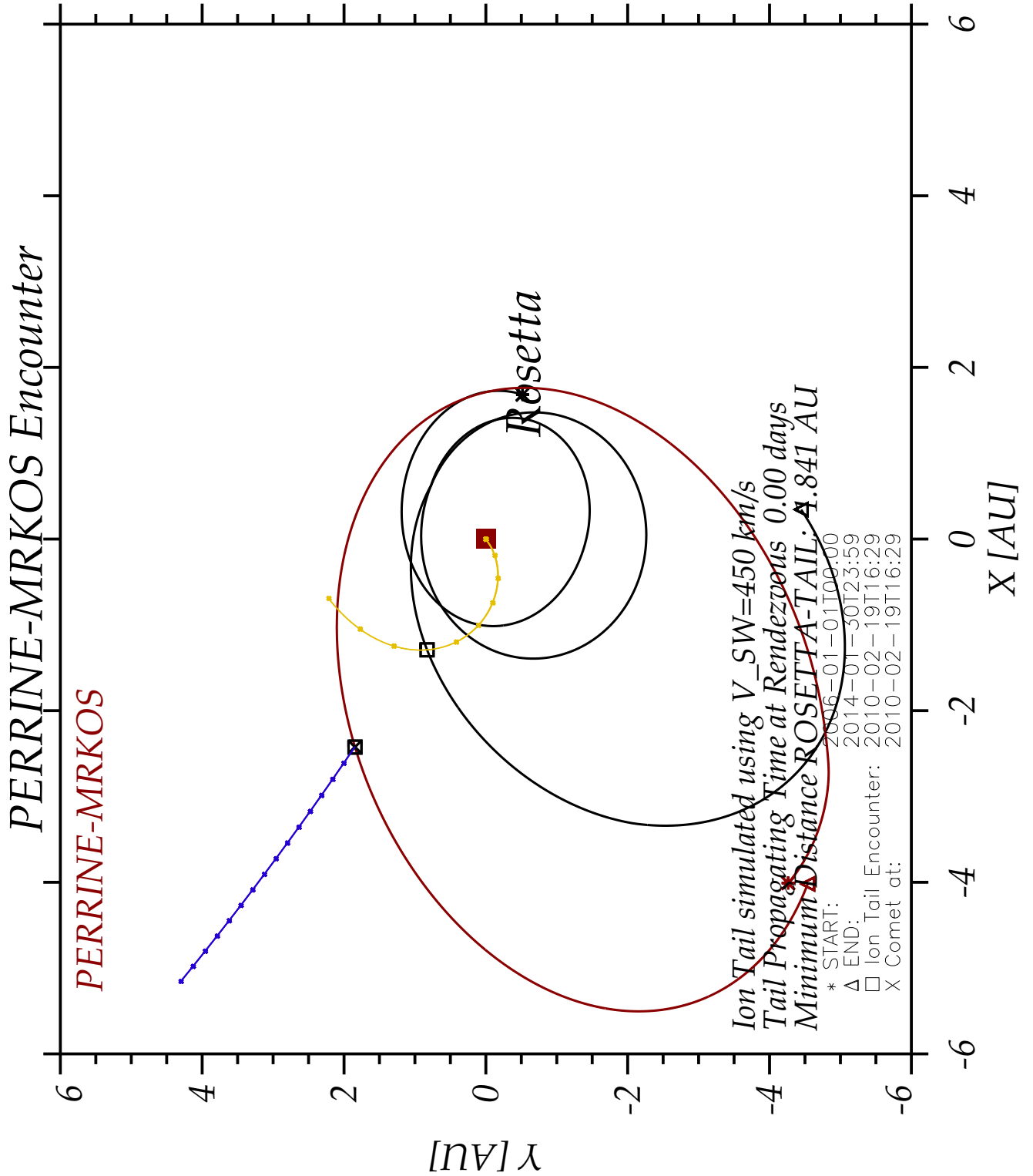


Figure 36: Overview: ROSETTA - PERRINE-MRKOS



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## **21 Comet 19P/BORRELLY**

<b>Comet: 19P/BORRELLY</b>
<b>No Encounter below 0.2000AU</b>

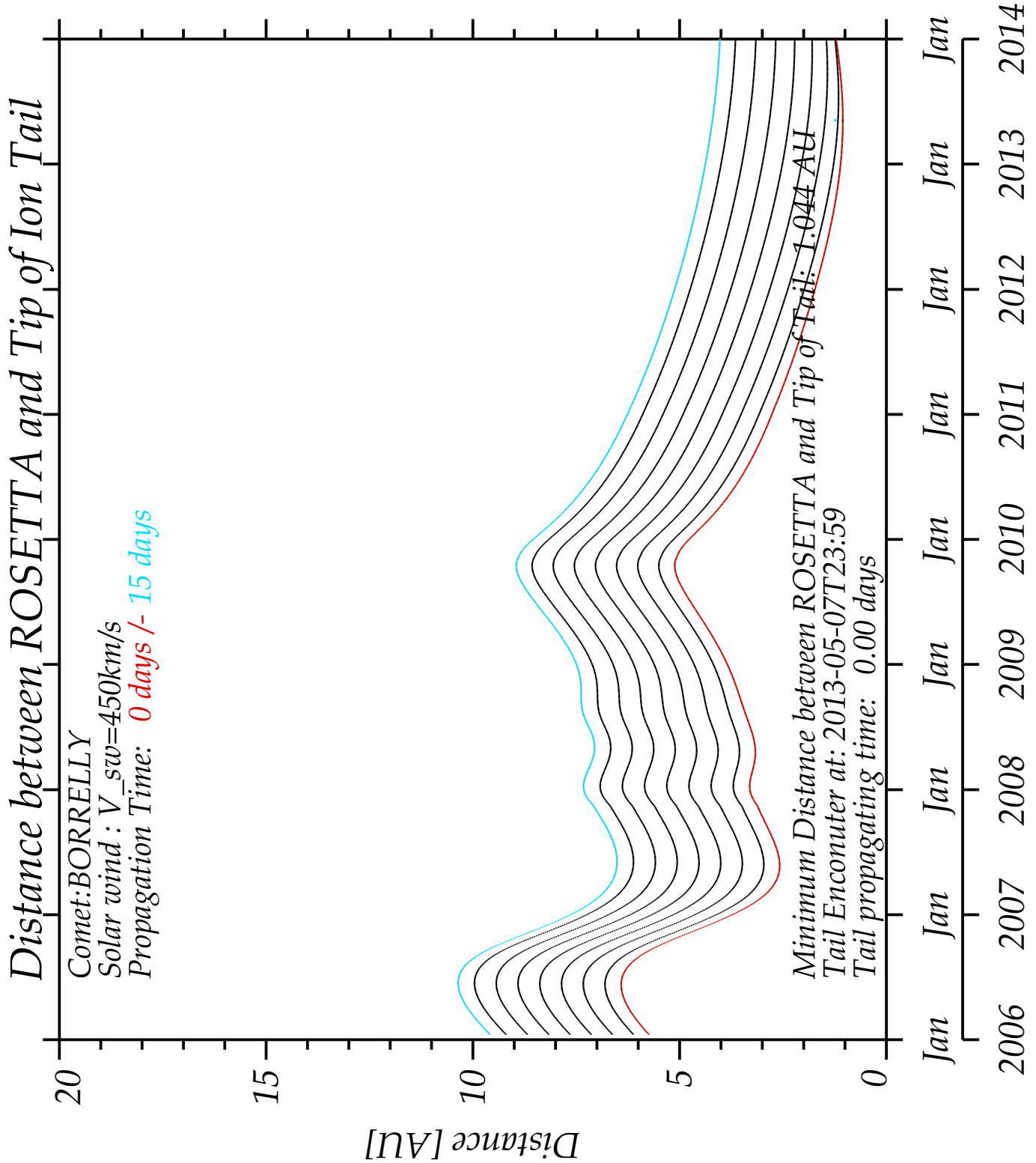


Figure 37: Minimum Distances: ROSETTA - BORRELLY

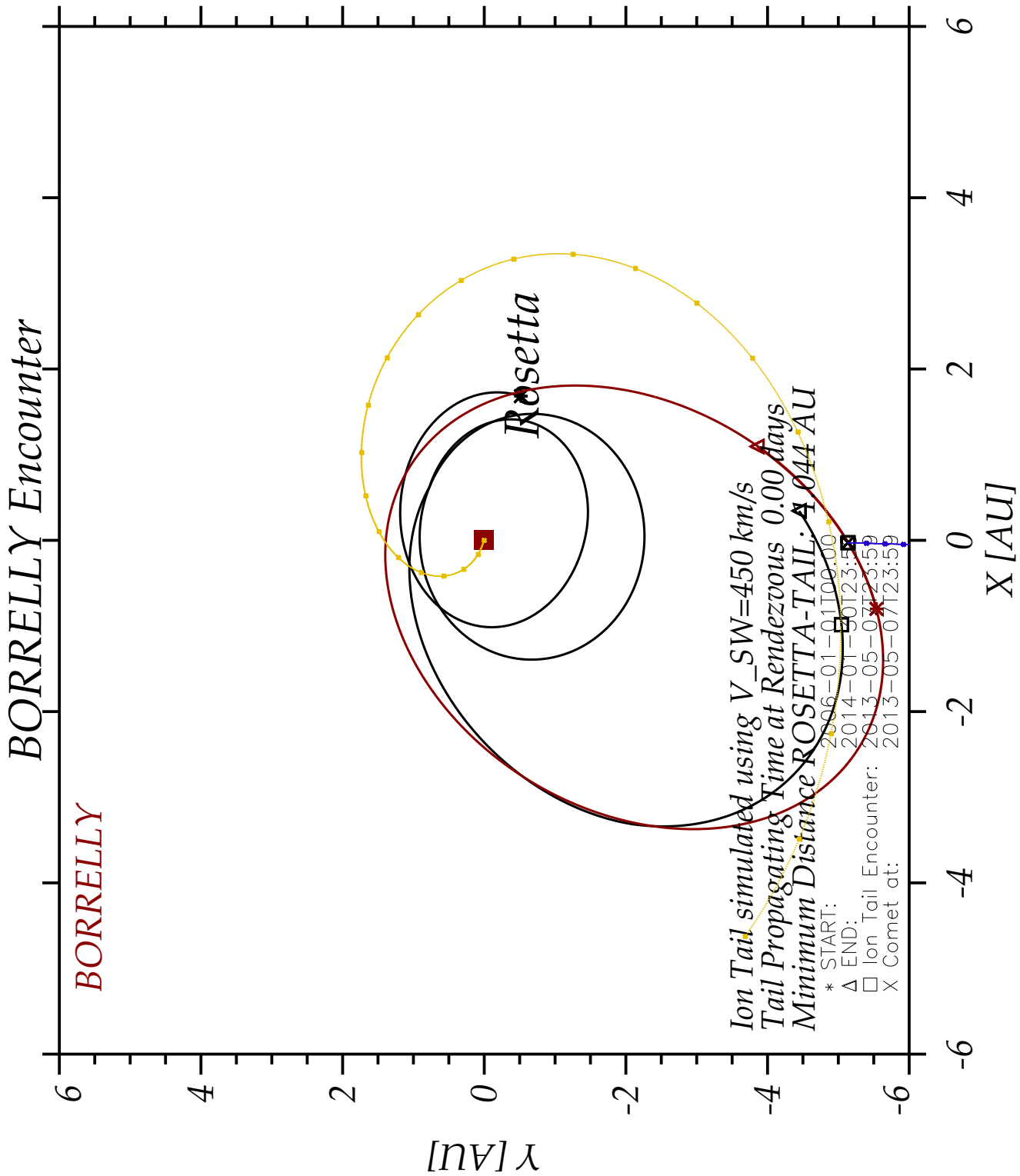


Figure 38: Overview: ROSETTA - BORRELLY

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## 22 Comet 20D/WESTPHAL

Comet: 20D/WESTPHAL
No Encounter below 0.2000AU

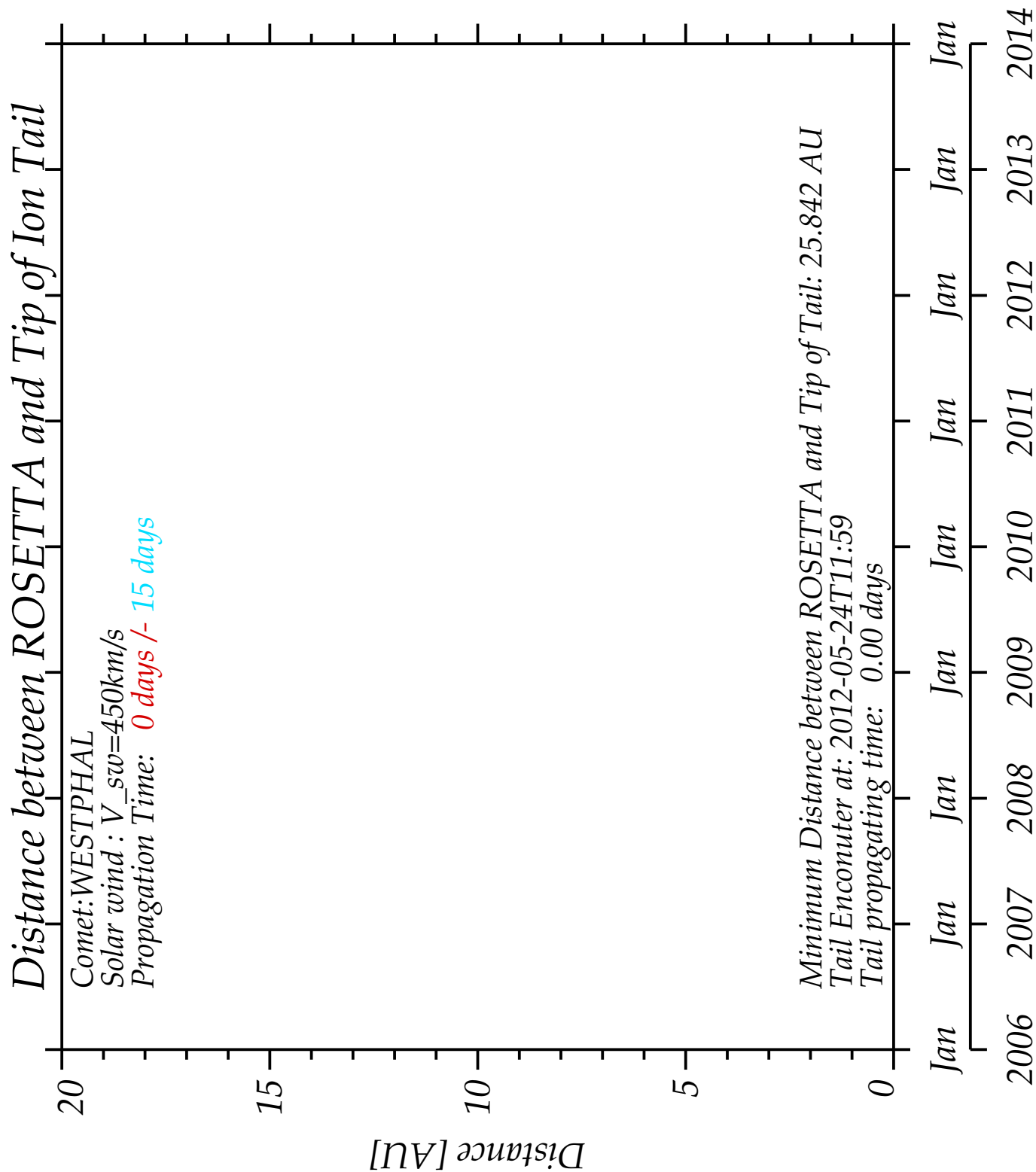


Figure 39: Minimum Distances: ROSETTA - WESTPHAL

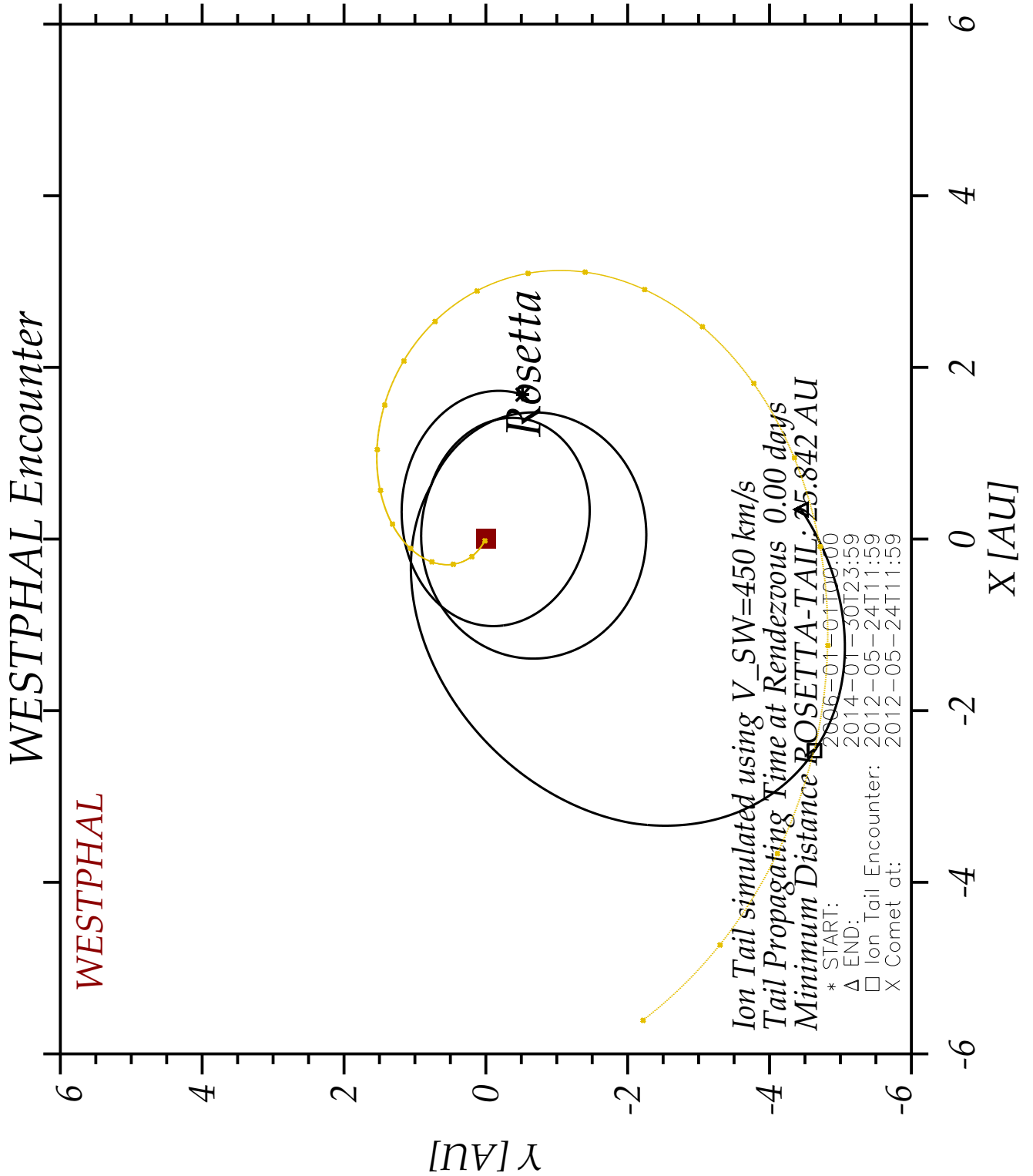


Figure 40: Overview: ROSETTA - WESTPHAL

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## 23 Comet 21P/GIACOBINI-ZINNER

<b>Comet: 21P/GIACOBINI-ZINNER</b>
<b>No Encounter below 0.2000AU</b>

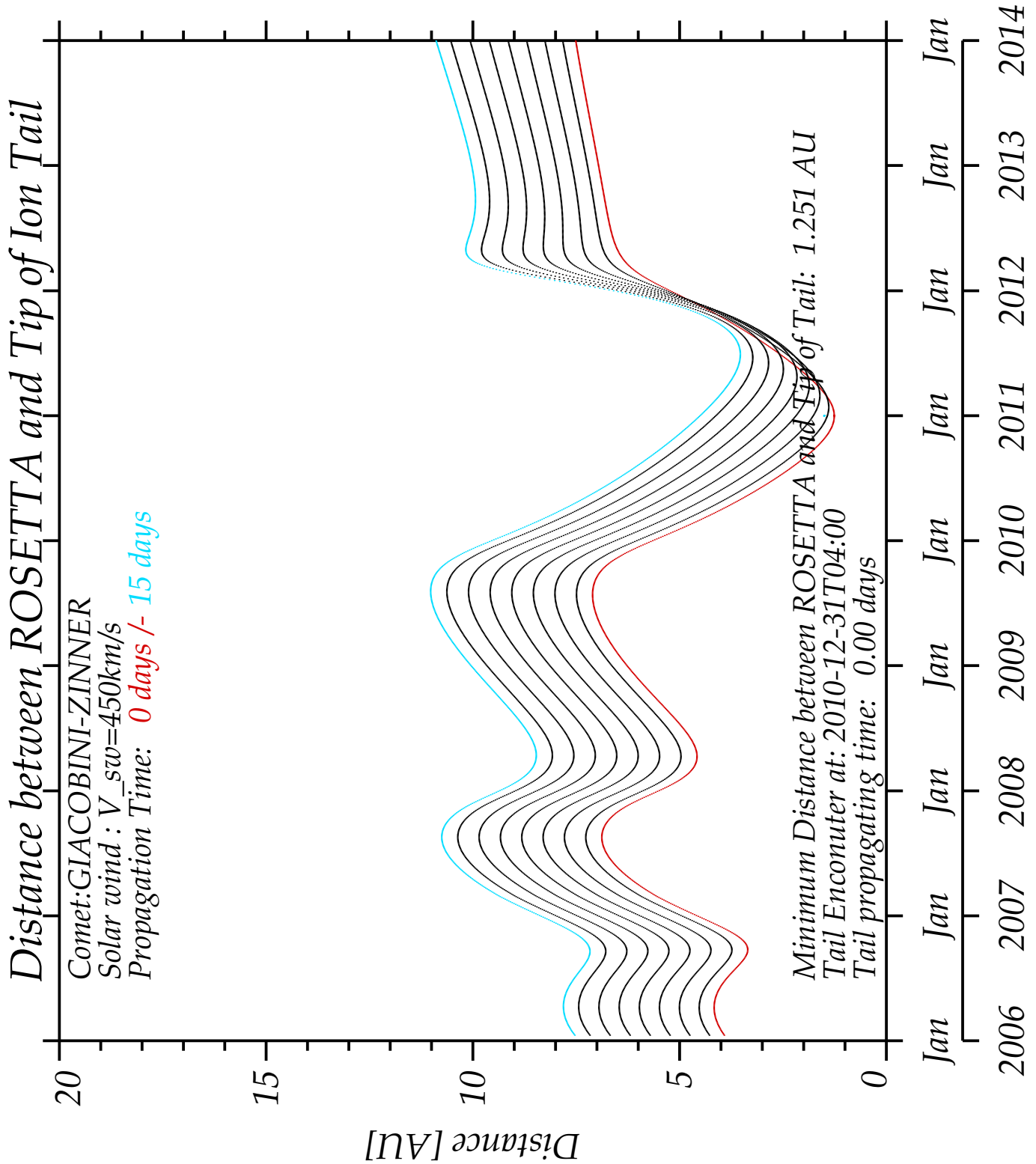


Figure 41: Minimum Distances: ROSETTA - GIACOBINI-ZINNER



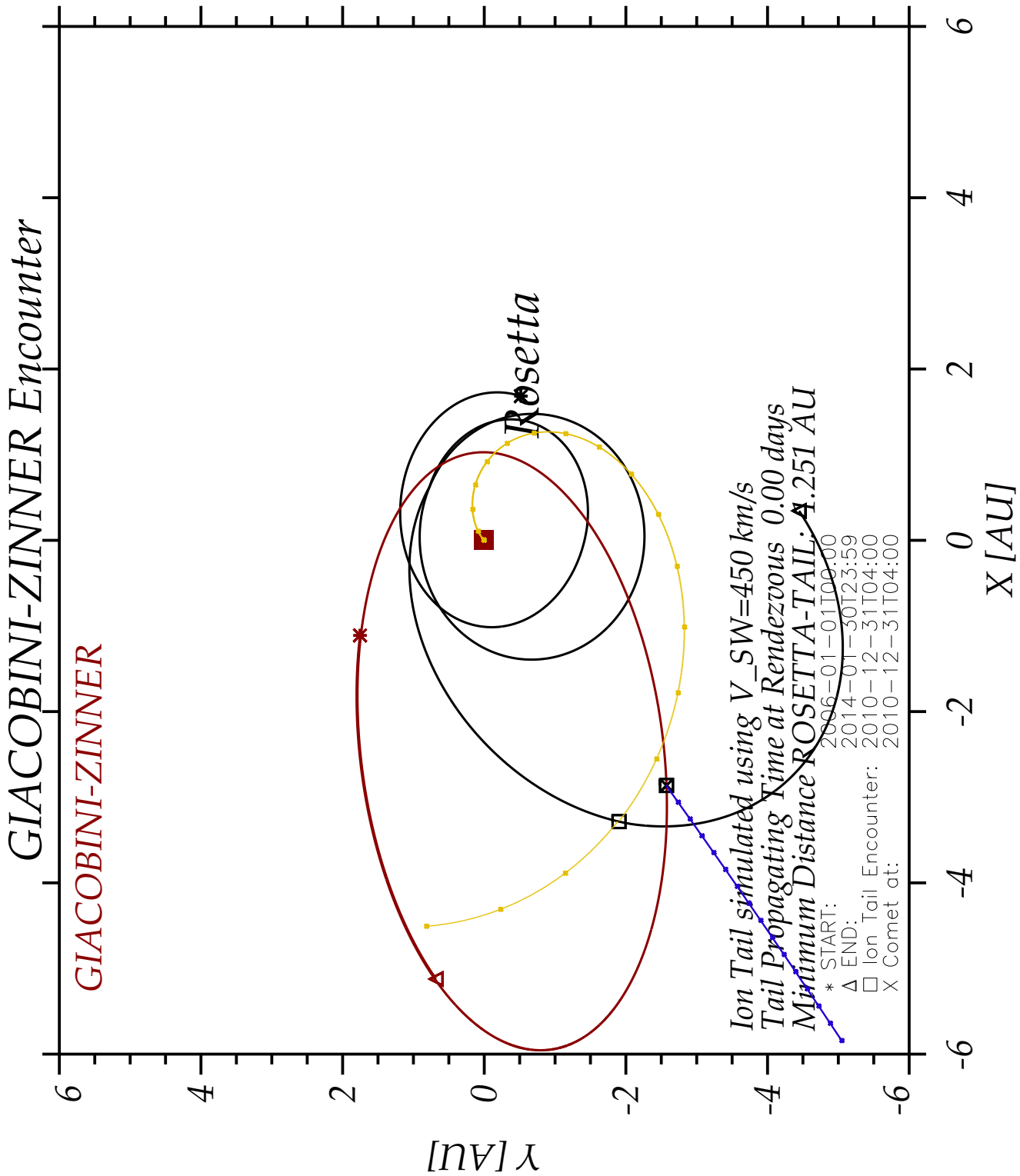


Figure 42: Overview: ROSETTA - GIACOBINI-ZINNER

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## 24 Comet 22P/KOPFF

<b>Comet: 22P/KOPFF</b>
<b>No Encounter below 0.2000AU</b>

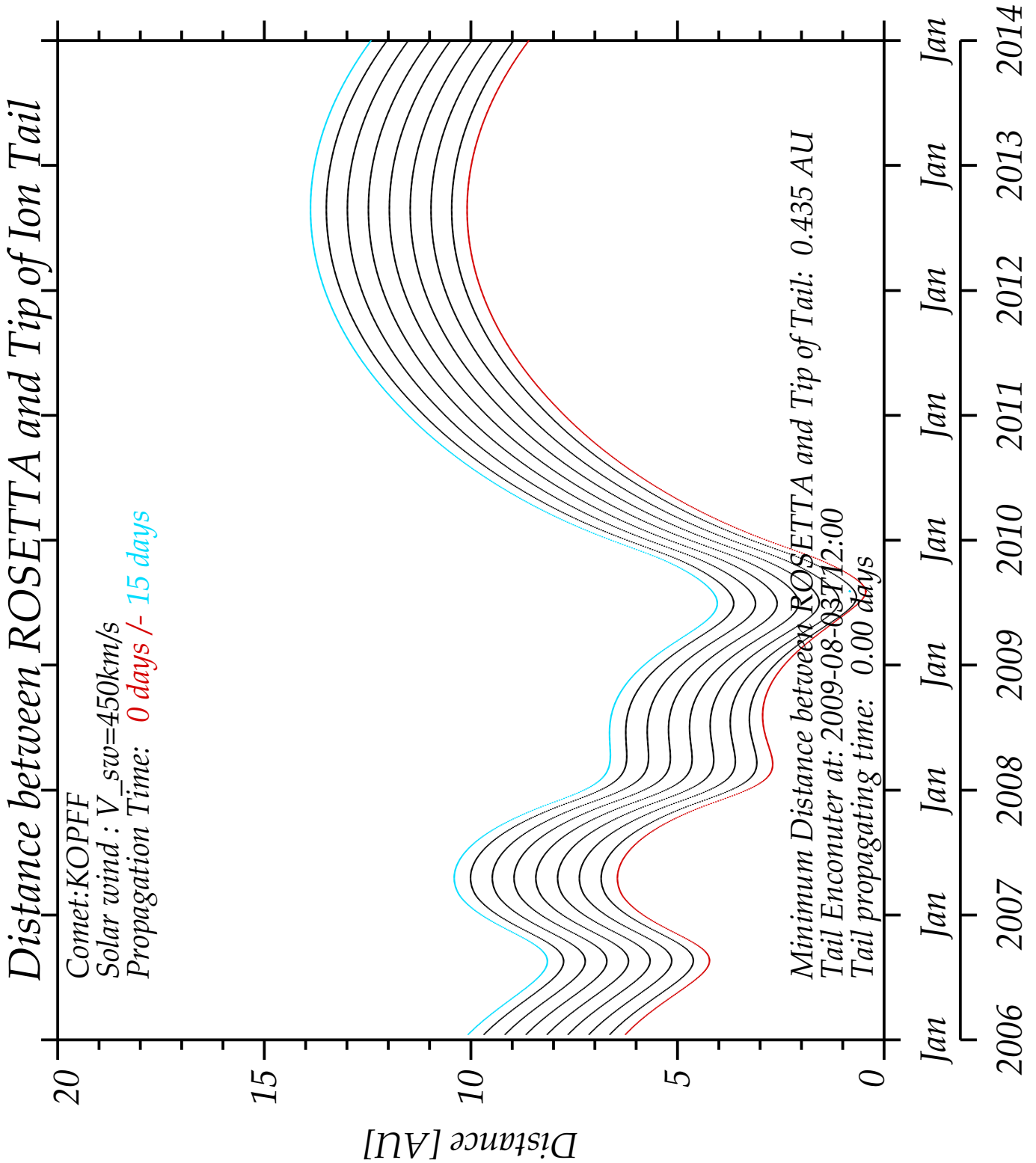


Figure 43: Minimum Distances: ROSETTA - KOPFF

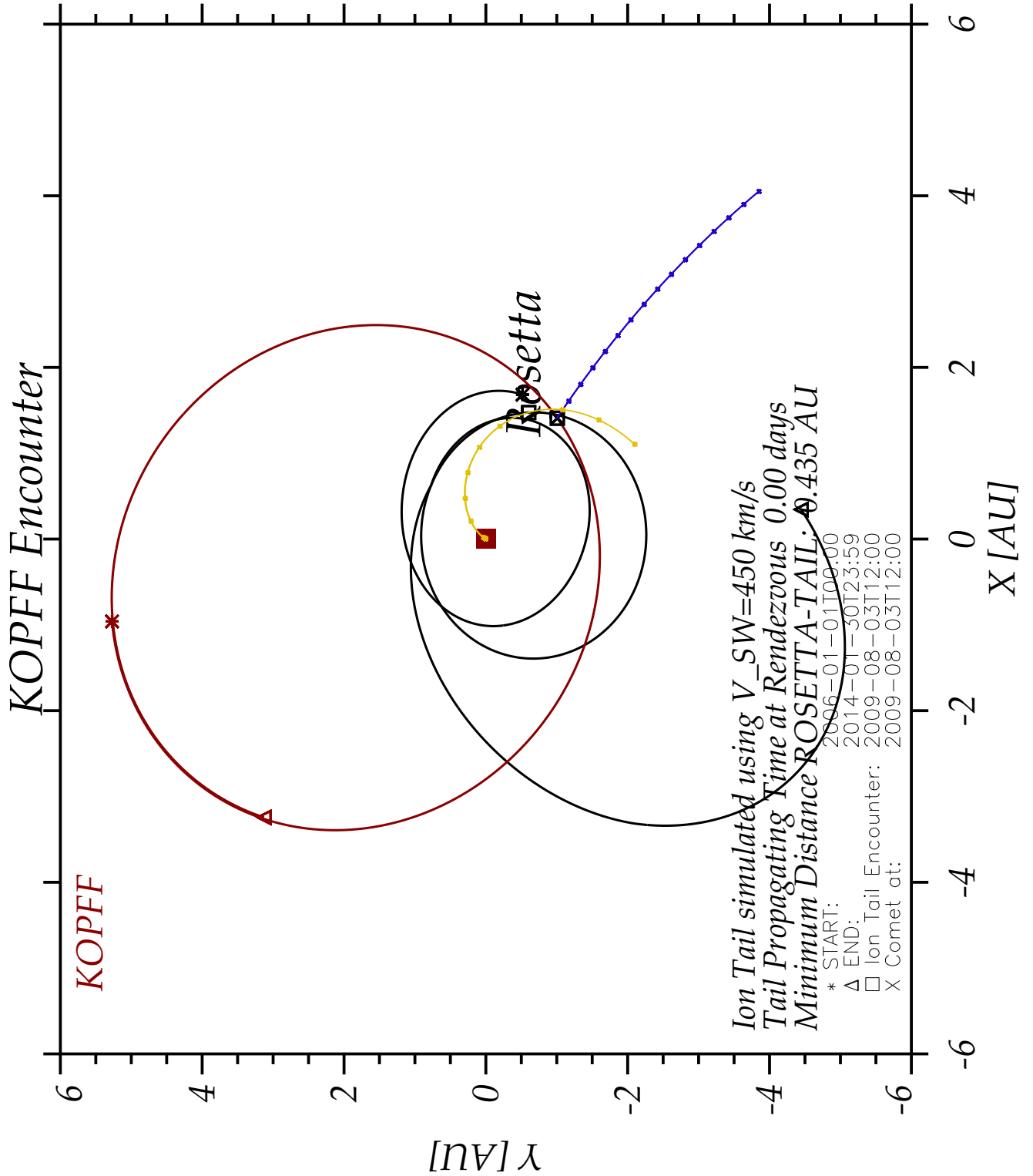


Figure 44: Overview: ROSETTA - KOPFF

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## 25 Comet 23P/BORSEN-METCALF

<b>Comet: 23P/BORSEN-METCALF</b>
<b>No Encounter below 0.2000AU</b>

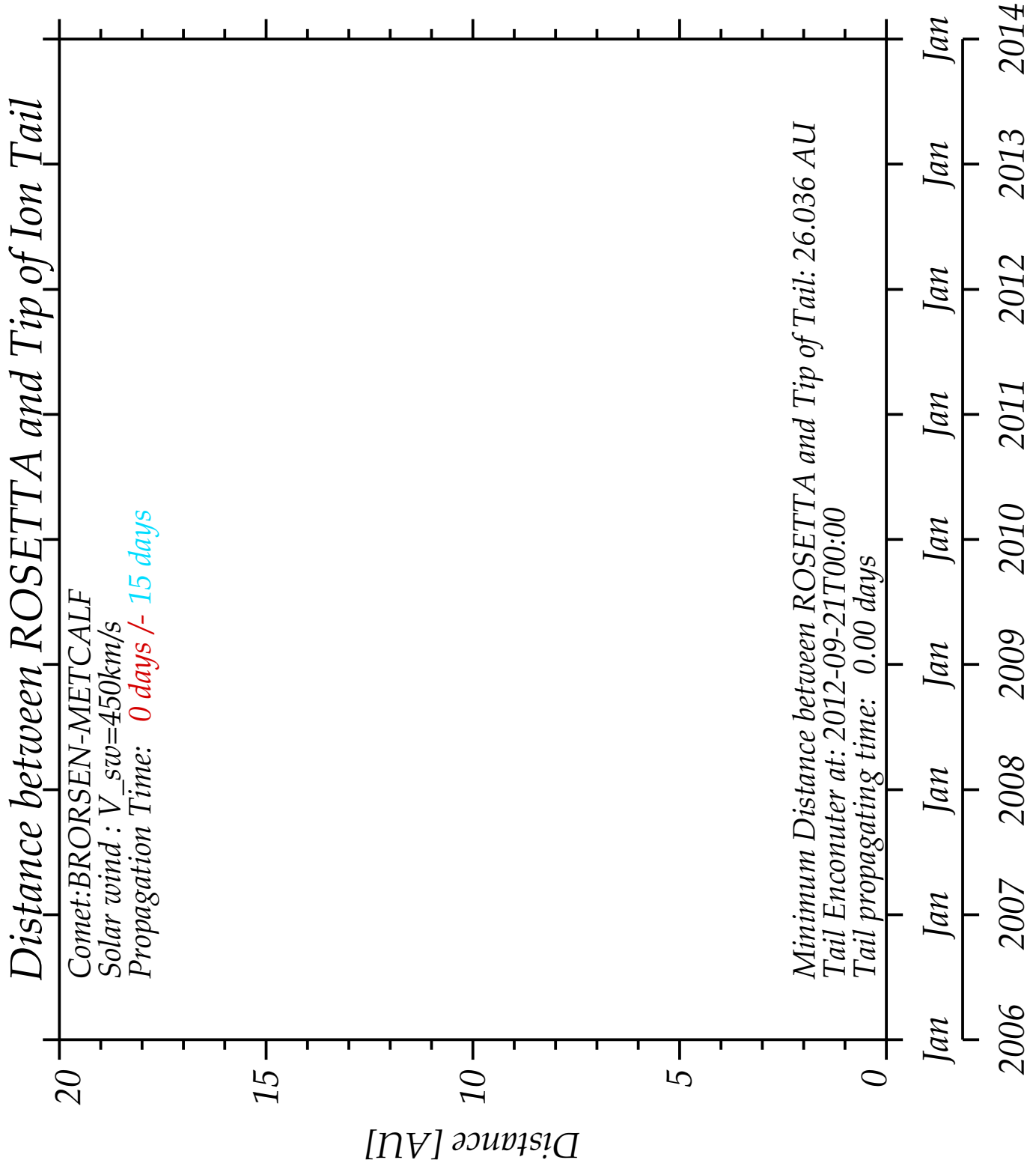


Figure 45: Minimum Distances: ROSETTA - BRORSEN-METCALF

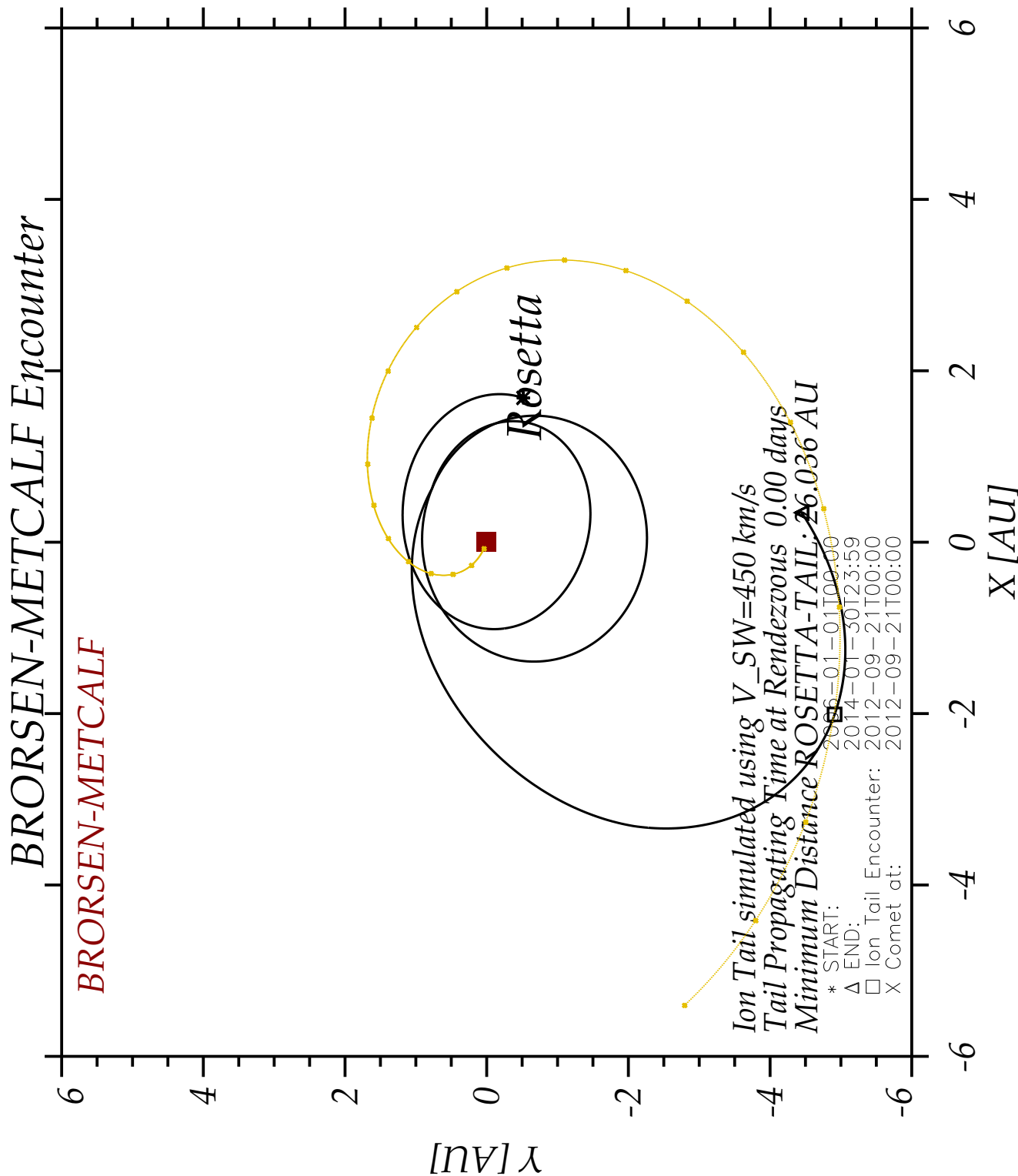


Figure 46: Overview: ROSETTA - BROSEN-METCALF

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## **26 Comet 24P/SCHAUMASSE**

<b>Comet: 24P/SCHAUMASSE</b>
<b>No Encounter below 0.2000AU</b>



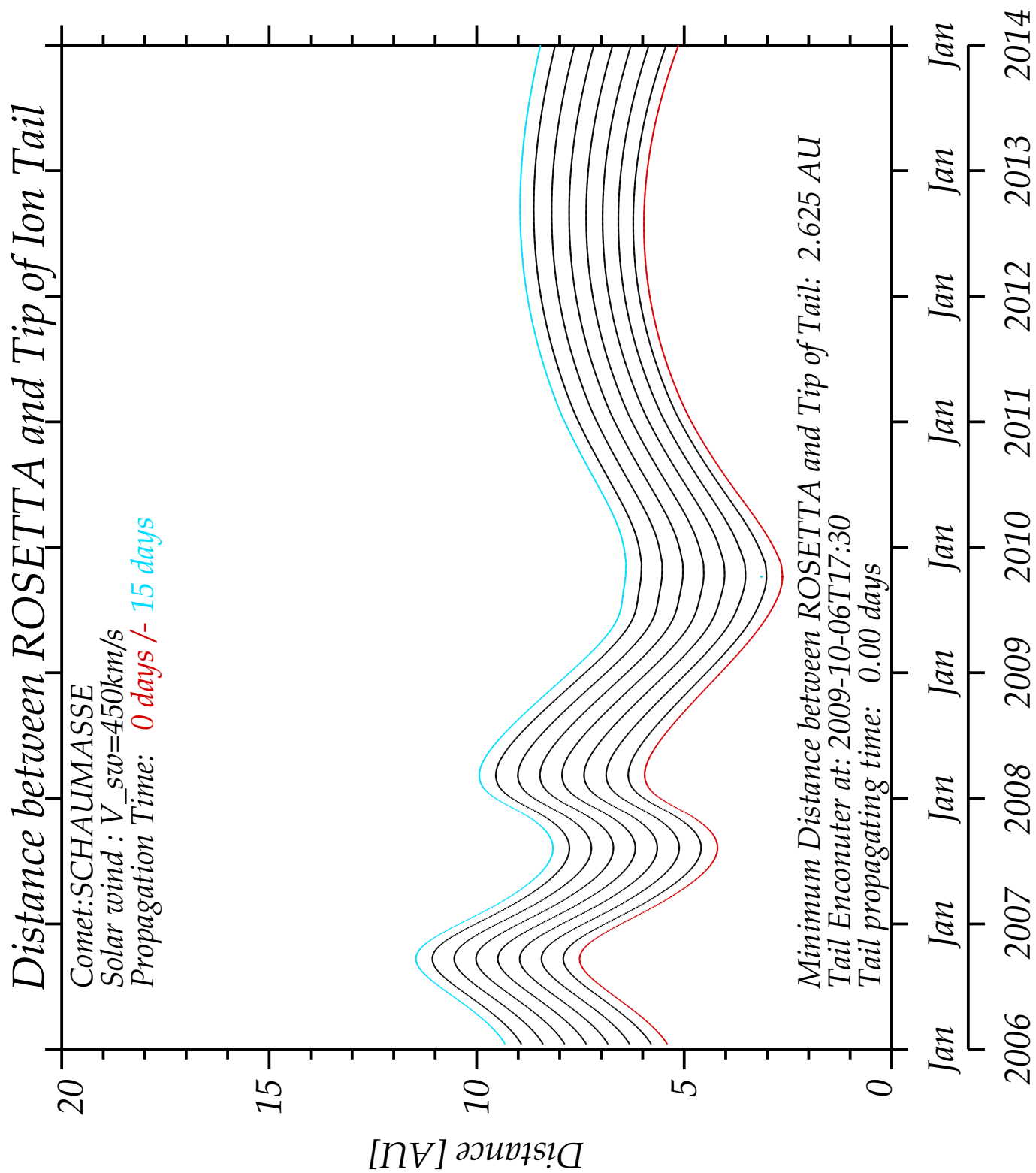


Figure 47: Minimum Distances: ROSETTA - SCHAUMASSE

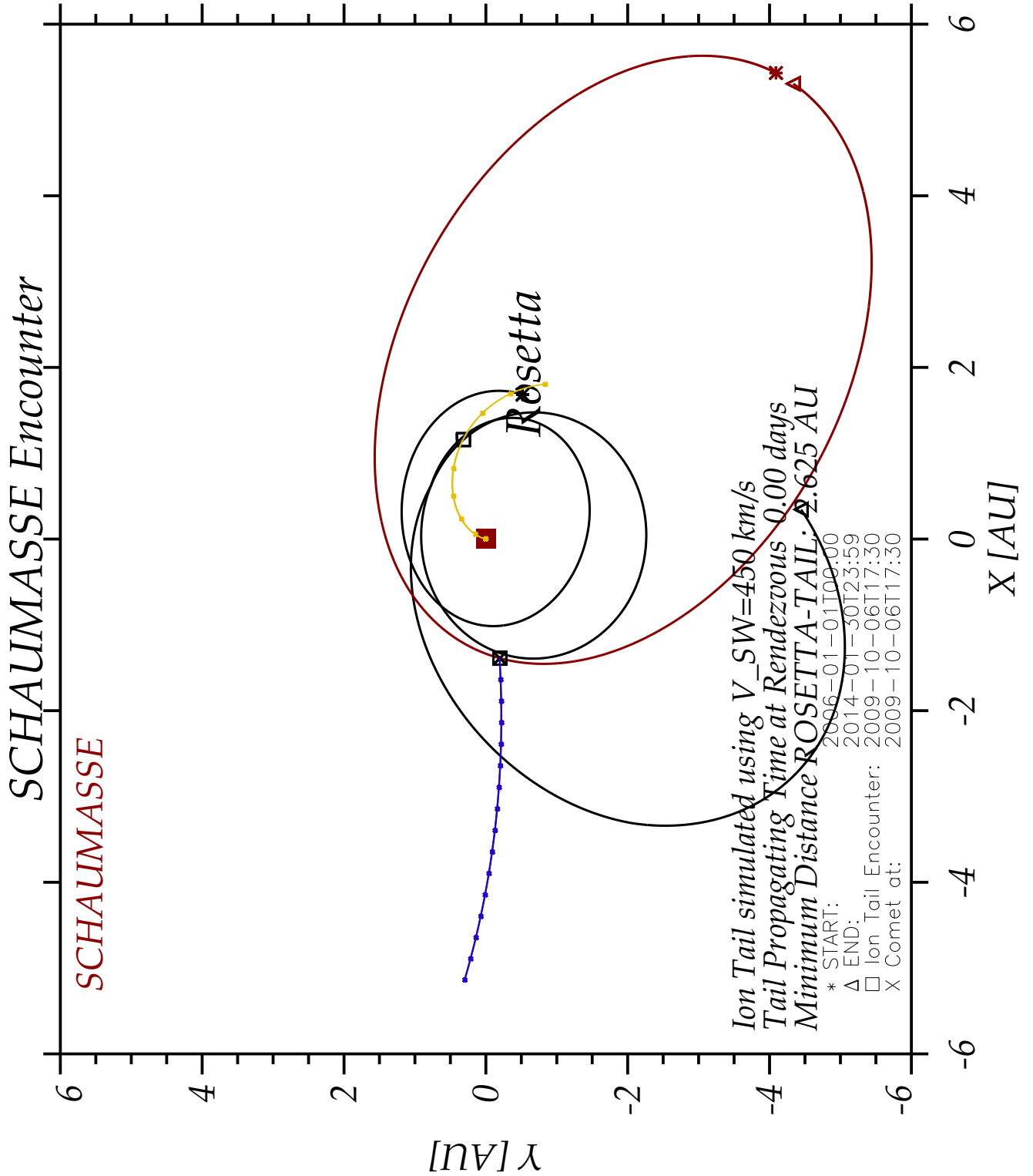


Figure 48: Overview: ROSETTA - SCHAUMASSE

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## **27 Comet 25D/NEUJMIN 2**

<b>Comet: 25D/NEUJMIN 2</b>
<b>No Encounter below 0.2000AU</b>

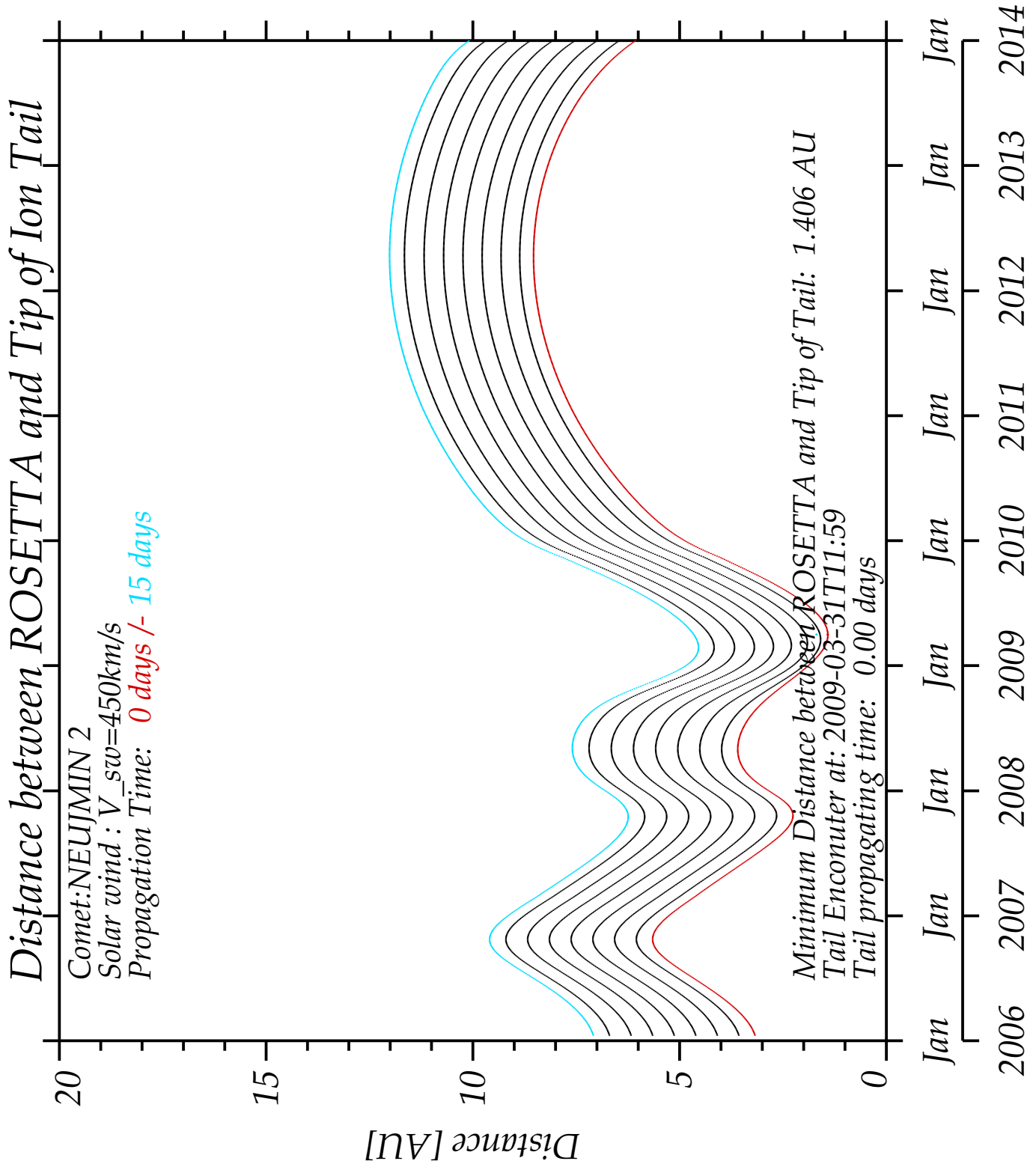


Figure 49: Minimum Distances: ROSETTA - NEUJMIN 2

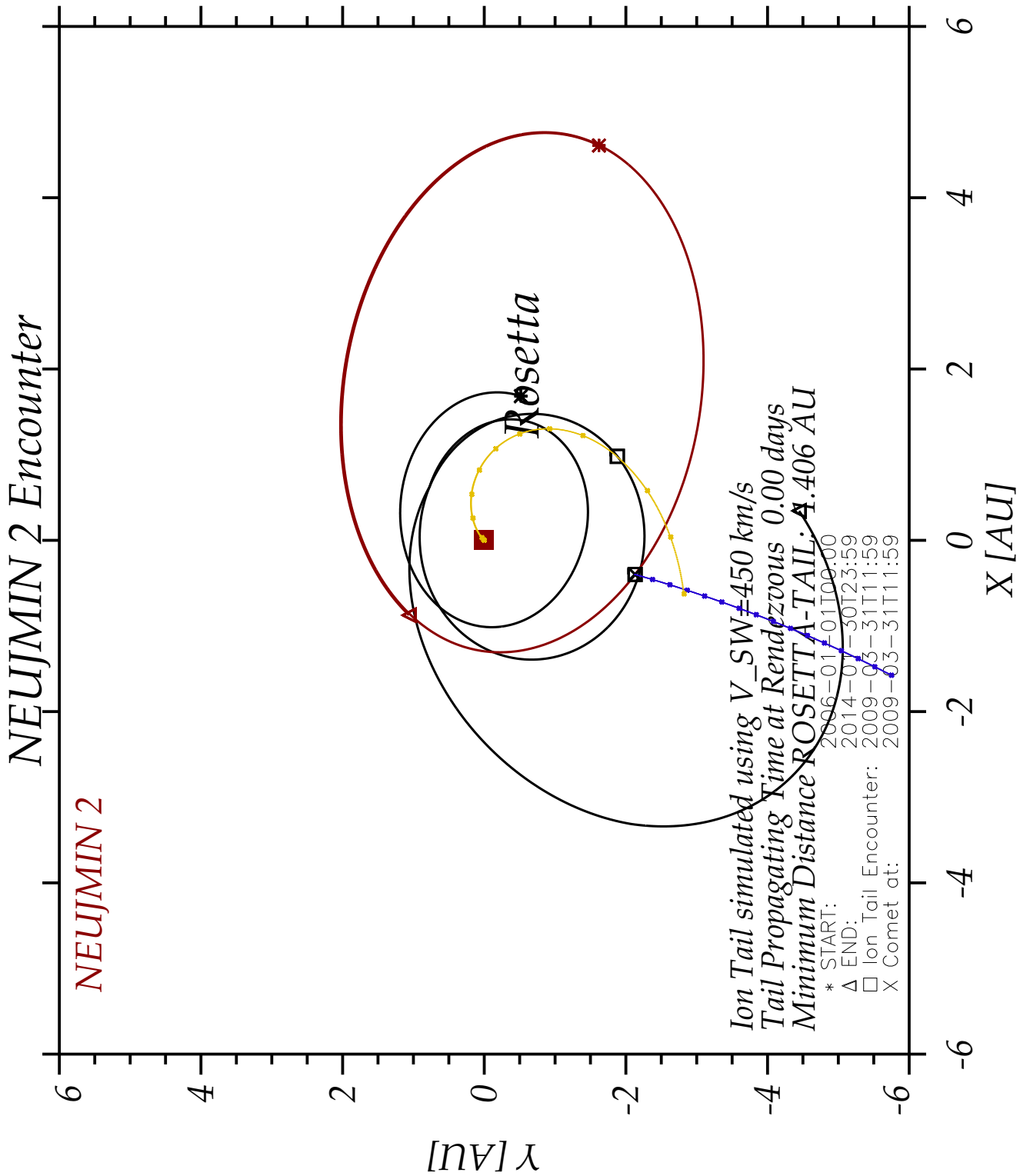


Figure 50: Overview: ROSETTA - NEUJMIN 2

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## 28 Comet 26P/GRIGG-SKJELLERUP

<b>Comet: 26P/GRIGG-SKJELLERUP</b>
<b>No Encounter below 0.2000AU</b>

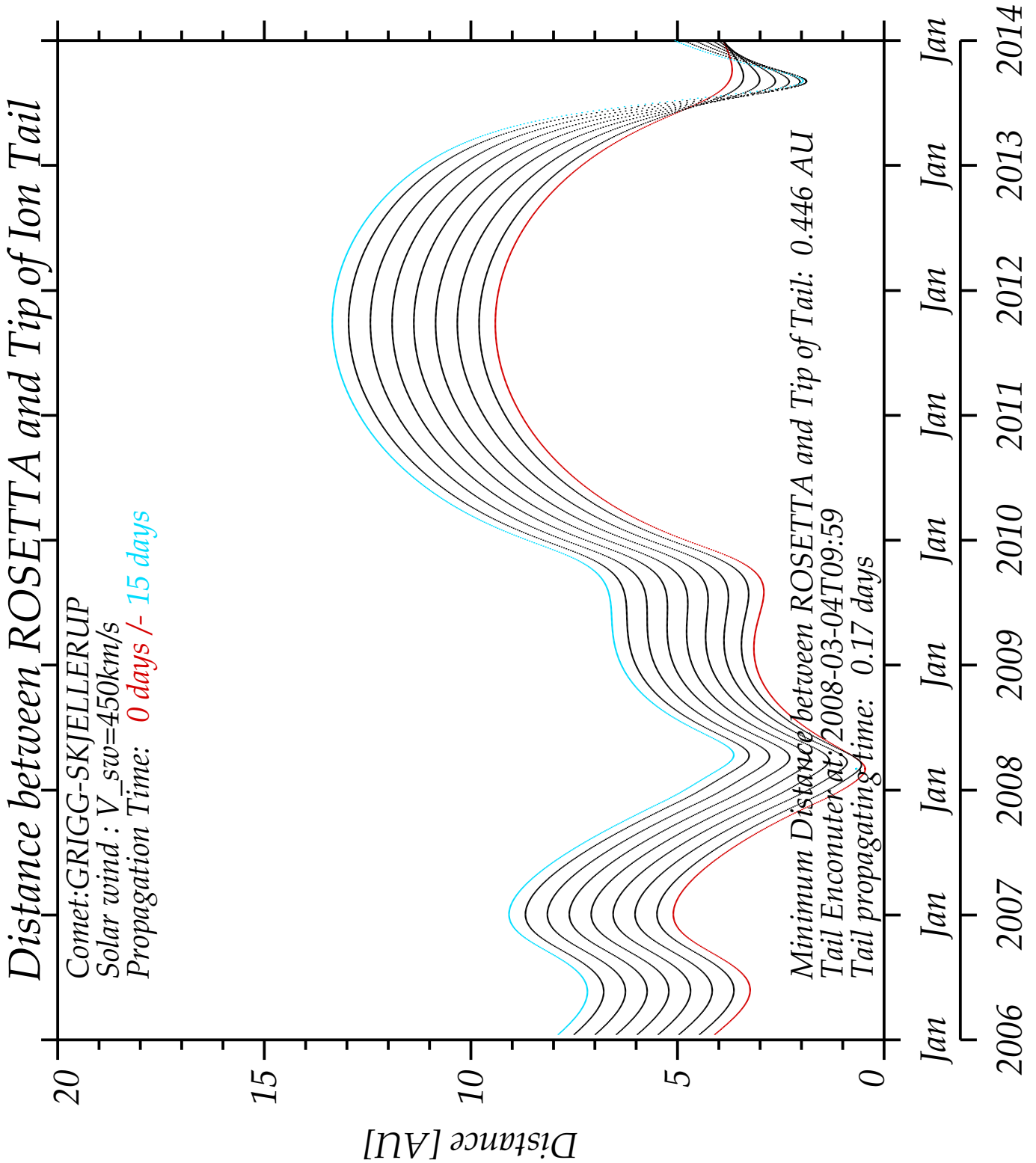


Figure 51: Minimum Distances: ROSETTA - GRIGG-SKJELLERUP

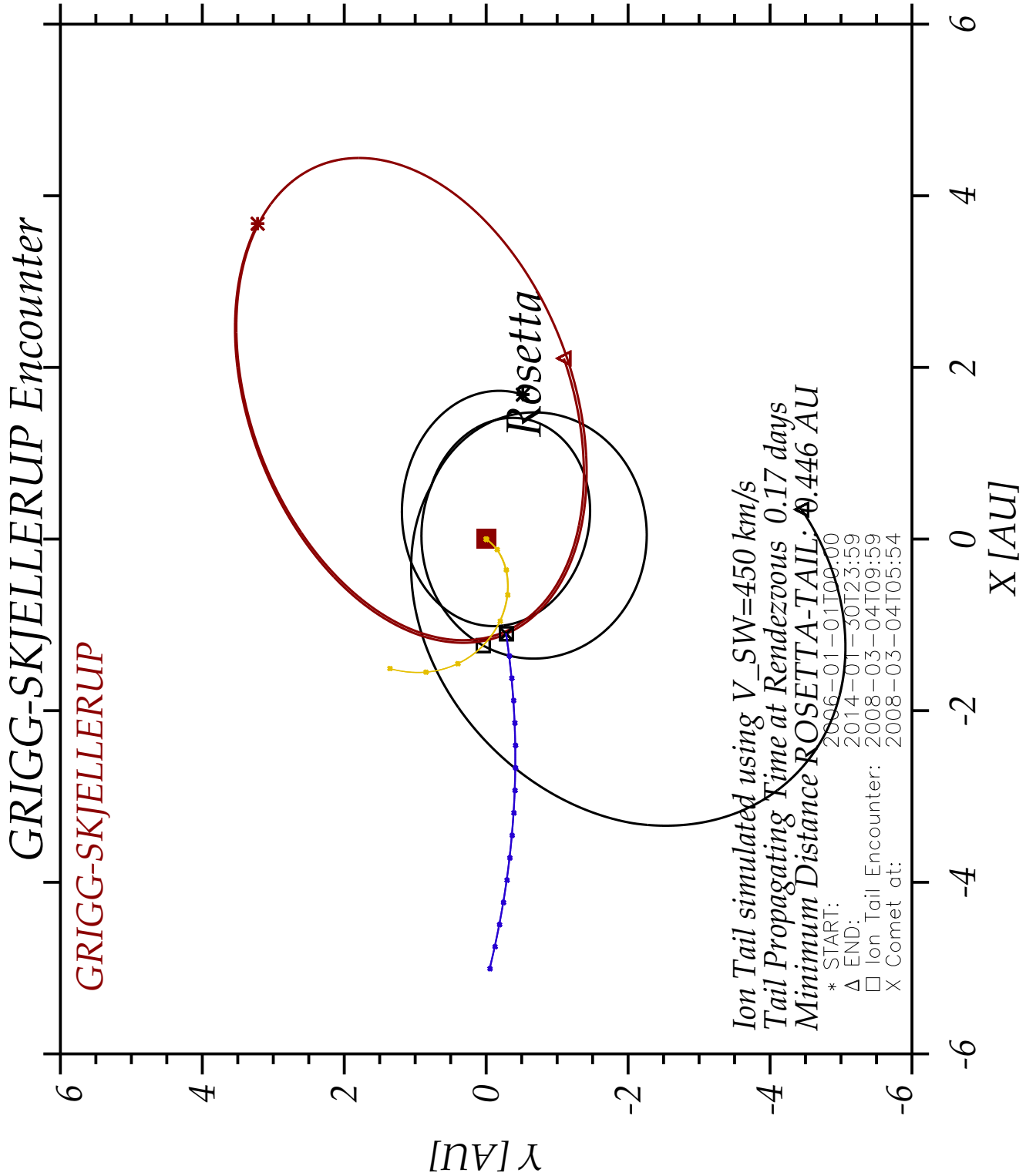


Figure 52: Overview: ROSETTA - GRIGG-SKJELLERUP



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## 29 Comet 27P/CROMMELIN

<b>Comet: 27P/CROMMELIN</b>
<b>No Encounter below 0.2000AU</b>

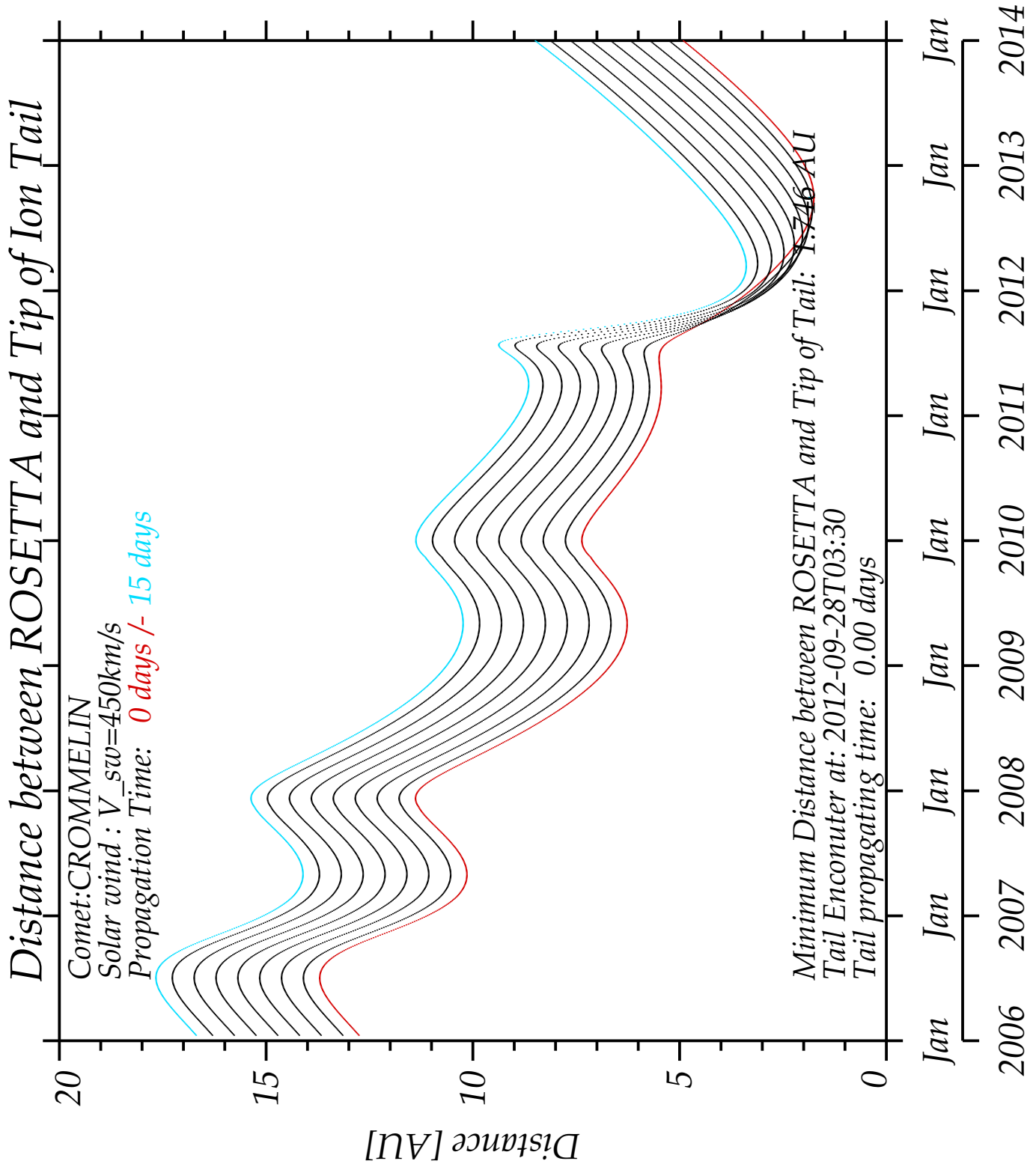


Figure 53: Minimum Distances: ROSETTA - CROMMELIN

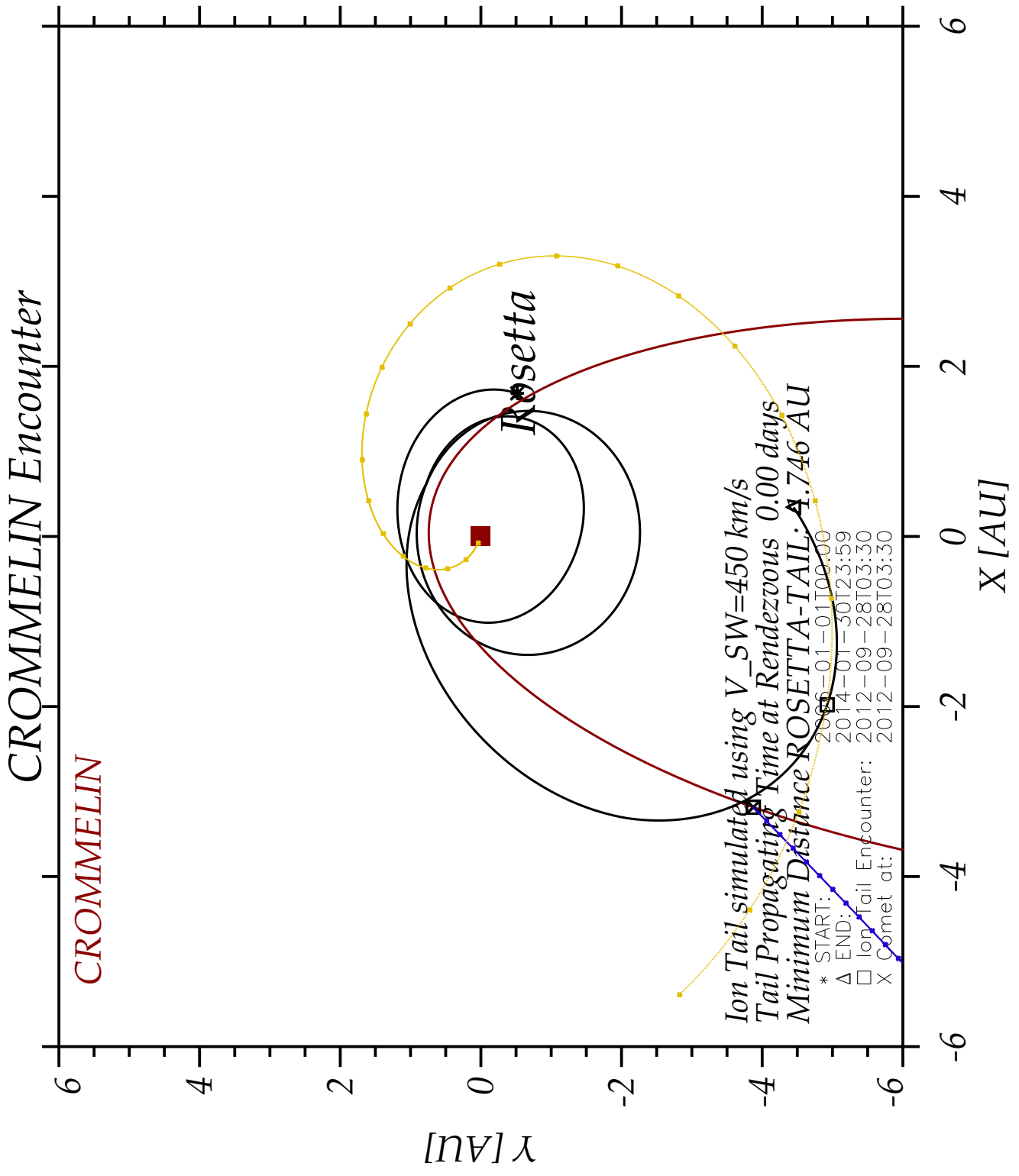


Figure 54: Overview: ROSETTA - CROMMELIN

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### **30 Comet 28P/NEUJMIN 1**

<b>Comet: 28P/NEUJMIN 1</b>
<b>No Encounter below 0.2000AU</b>

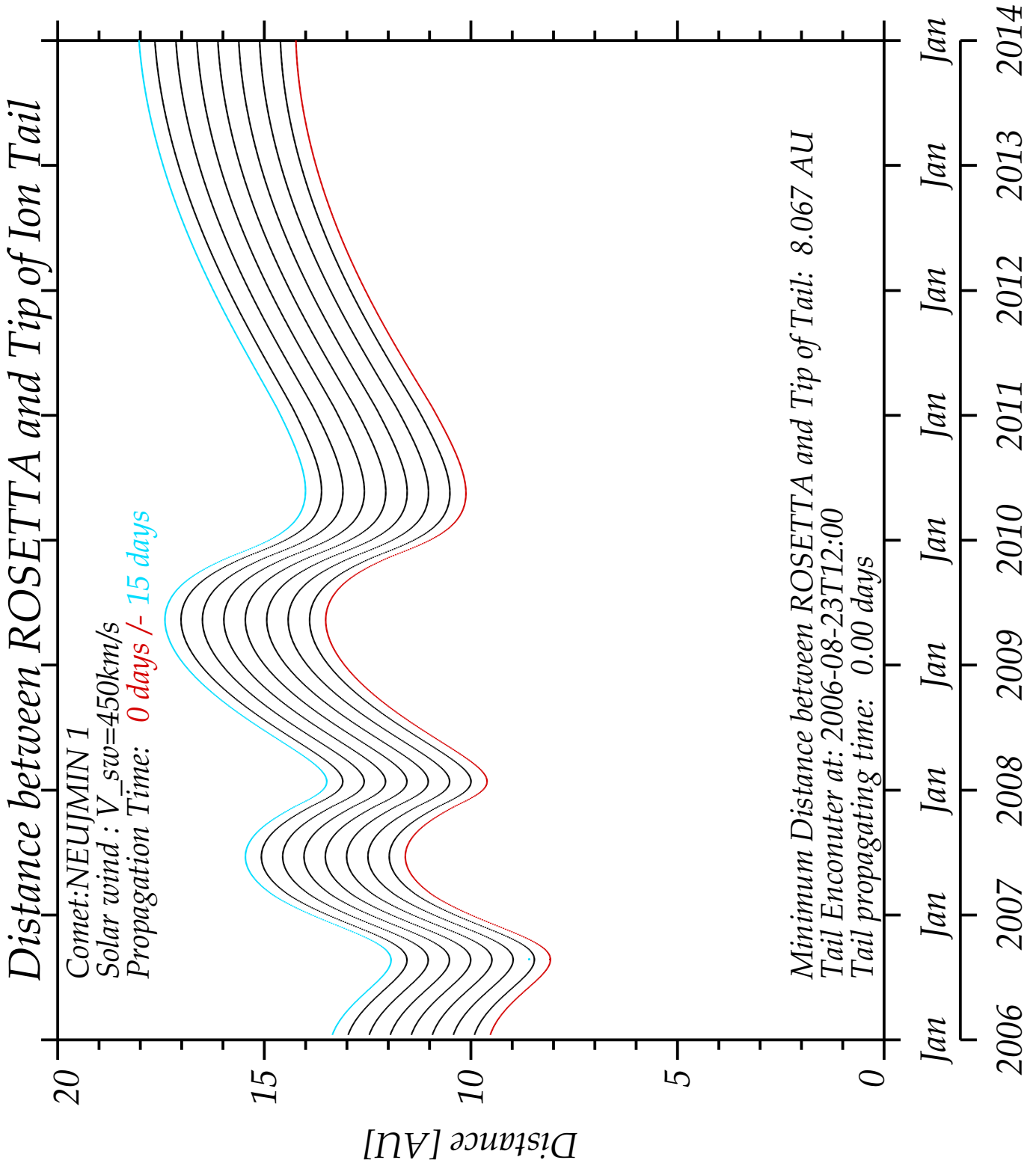


Figure 55: Minimum Distances: ROSETTA - NEUJMIN 1

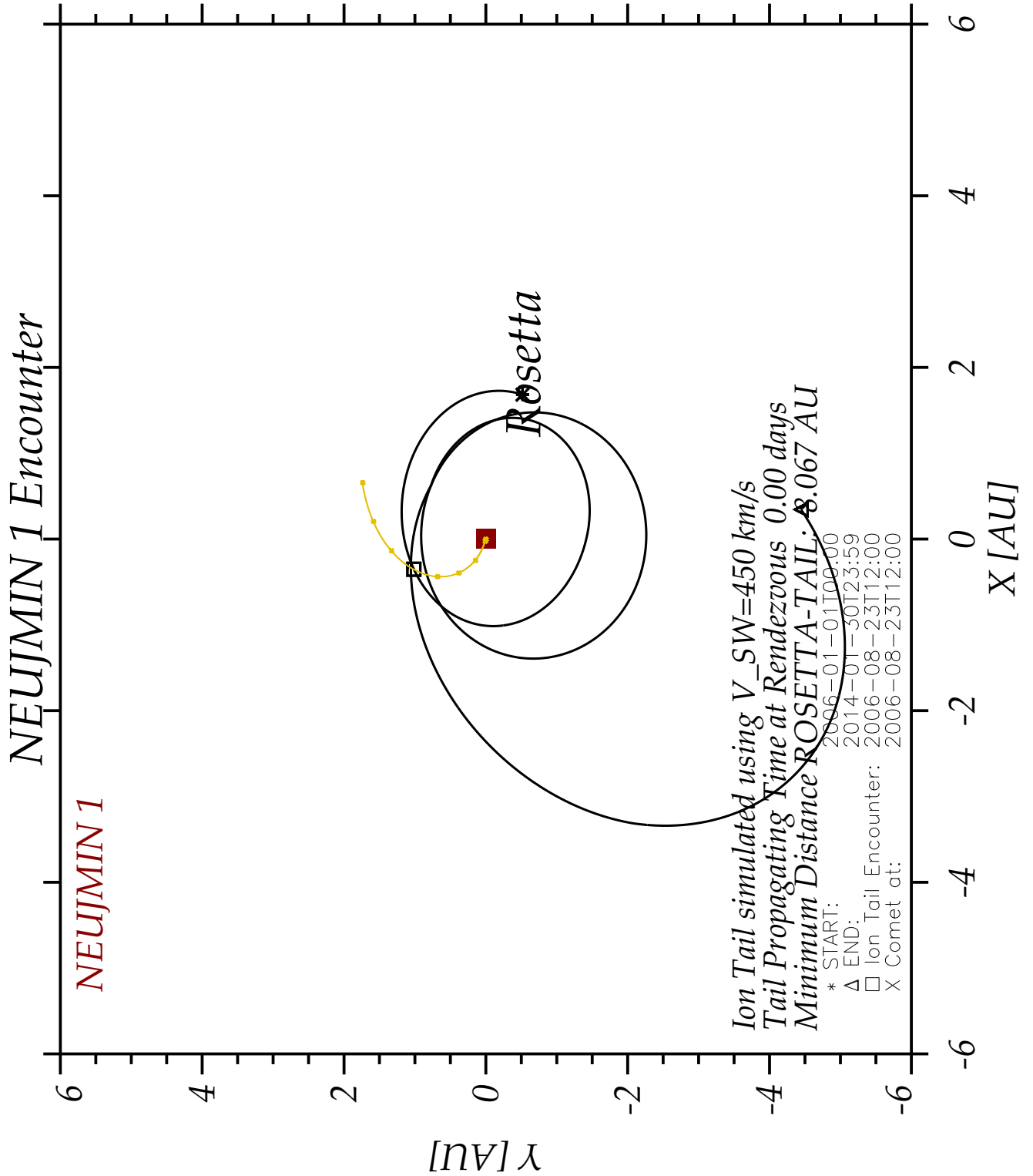


Figure 56: Overview: ROSETTA - NEUJMIN 1

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### 31 Comet 29P/SCHWASSMANN-WACHMANN 1

<b>Comet: 29P/SCHWASSMANN-WACHMANN 1</b>
<b>No Encounter below 0.2000AU</b>

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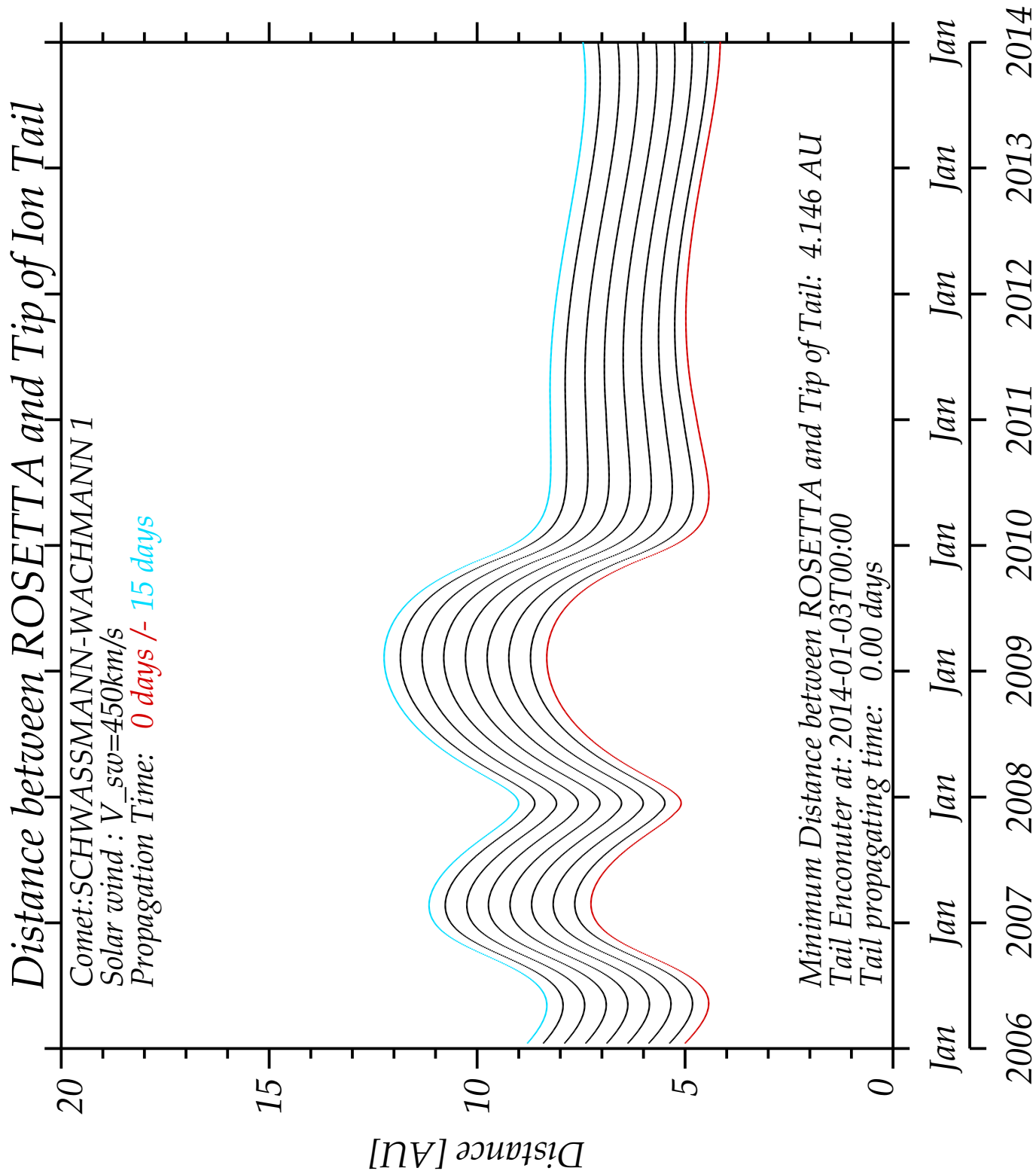


Figure 57: Minimum Distances: ROSETTA - SCHWASSMANN-WACHMANN 1



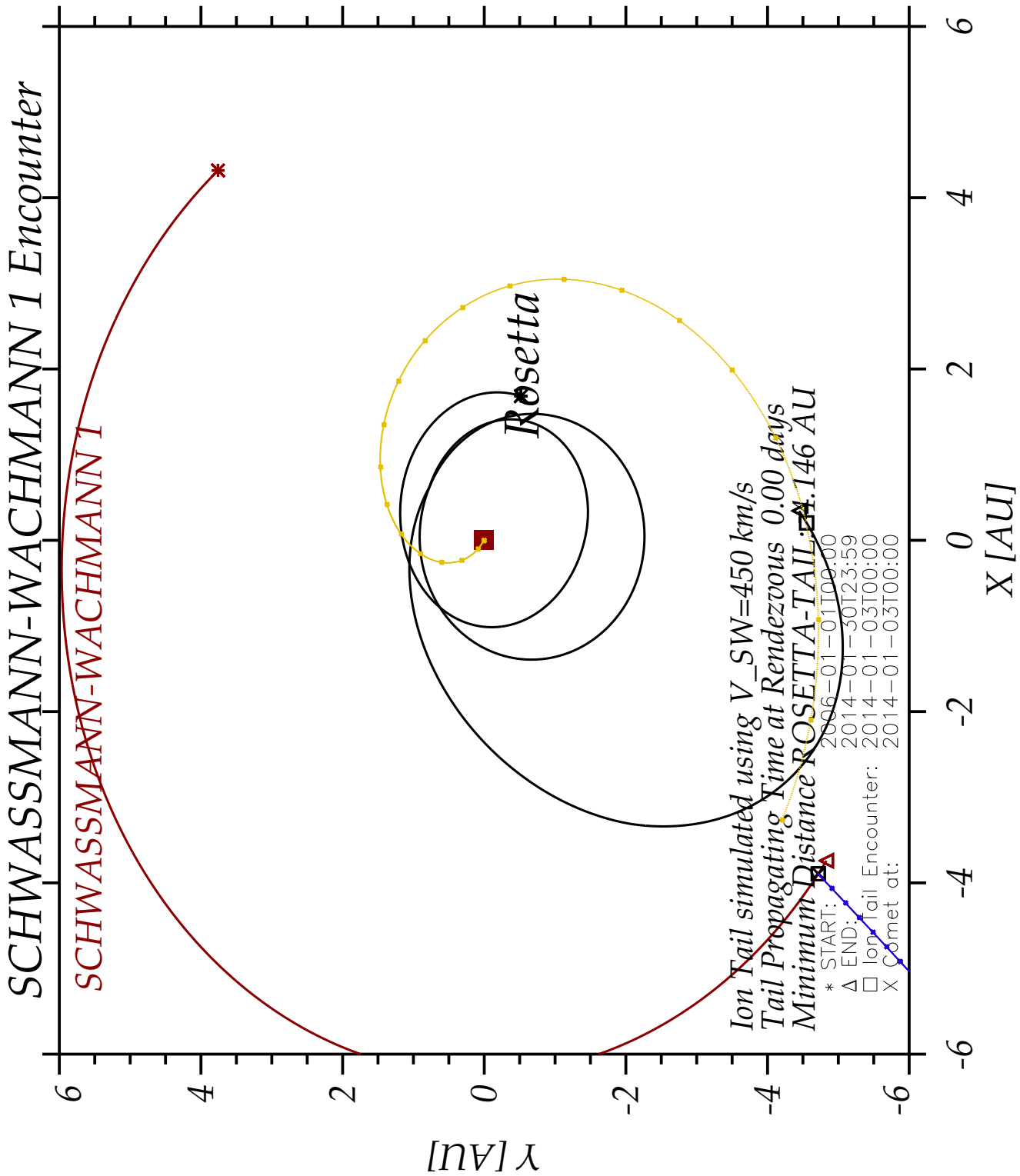


Figure 58: Overview: ROSETTA - SCHWASSMANN-WACHMANN 1

<p style="text-align: center;">R O S E T T A</p>	<p>Document: RO-IGEP-TR-0020 Issue: 1 Revision: 2</p>
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## 32 Comet 30P/REINMUTH 1

<p><b>Comet: 30P/REINMUTH 1</b></p>
<p><b>No Encounter below 0.2000AU</b></p>

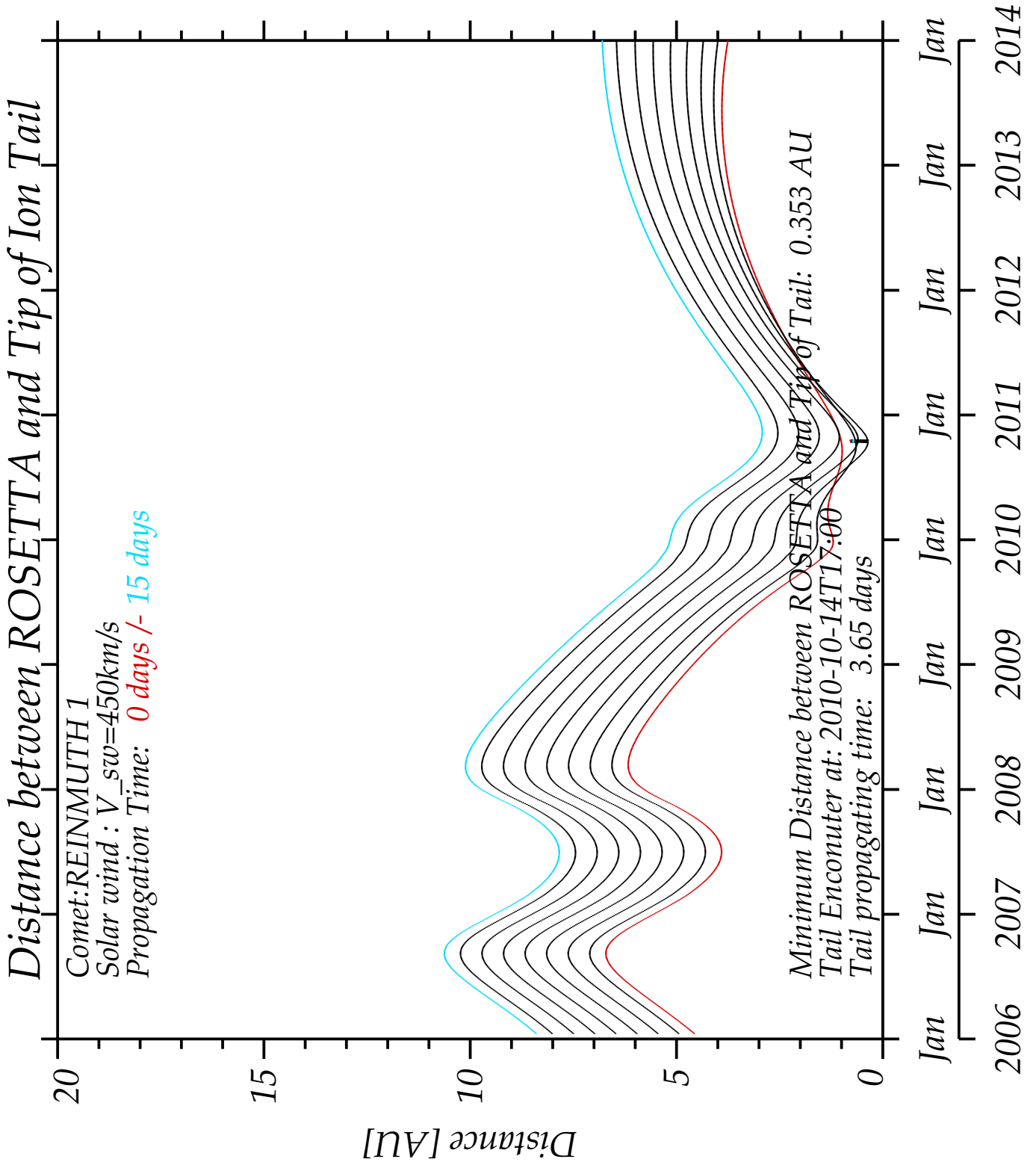


Figure 59: Minimum Distances: ROSETTA - REINMUTH 1

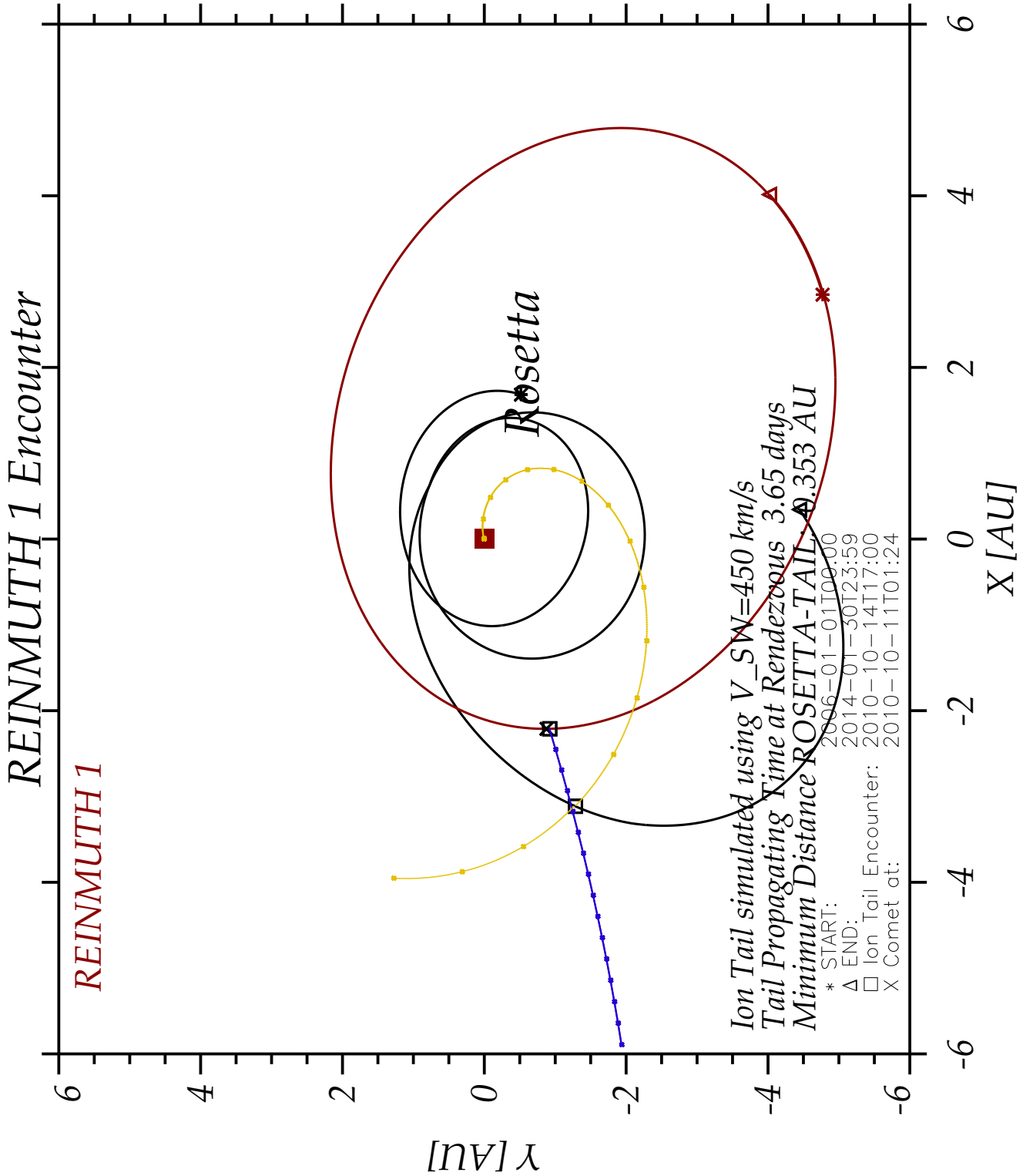


Figure 60: Overview: ROSETTA - REINMUTH 1

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### 33 Comet 31P/SCHWASSMANN-WACHMANN 2

<b>Comet: 31P/SCHWASSMANN-WACHMANN 2</b>
<b>No Encounter below 0.2000AU</b>

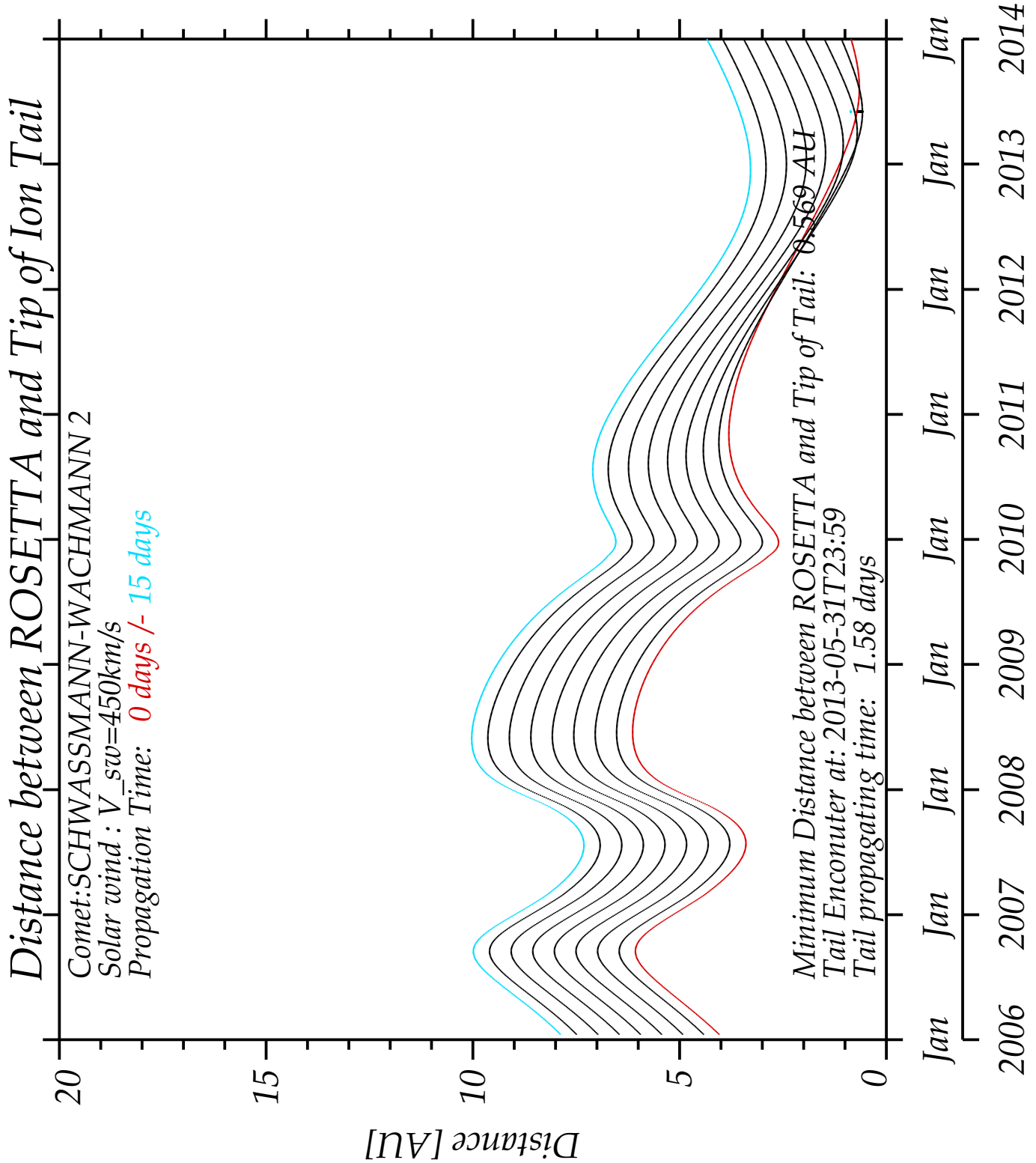


Figure 61: Minimum Distances: ROSETTA - SCHWASSMANN-WACHMANN 2

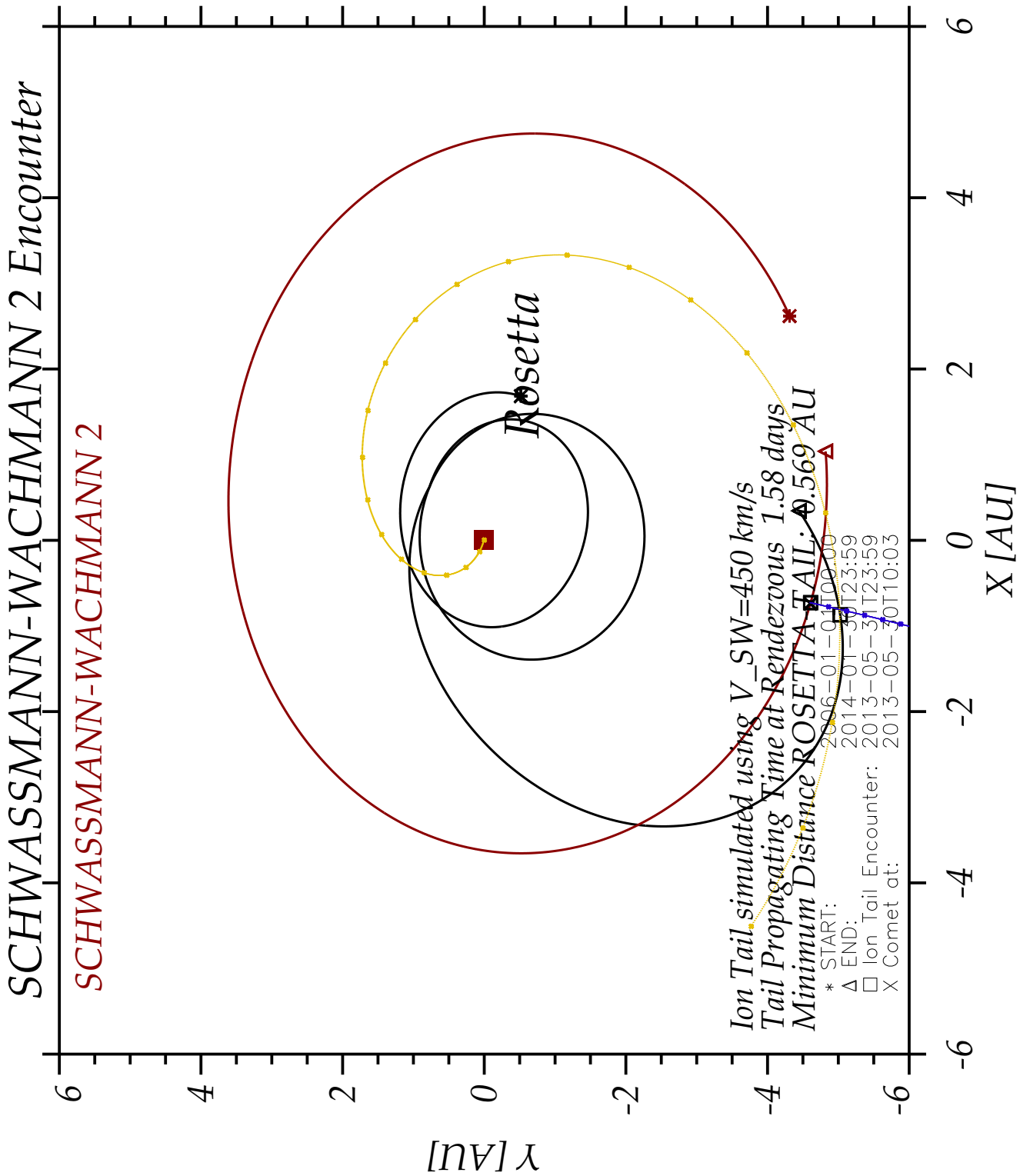


Figure 62: Overview: ROSETTA - SCHWASSMANN-WACHMANN 2

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## 34 Comet 32P/COMAS SOLA

Comet: 32P/COMAS SOLA
No Encounter below 0.2000AU



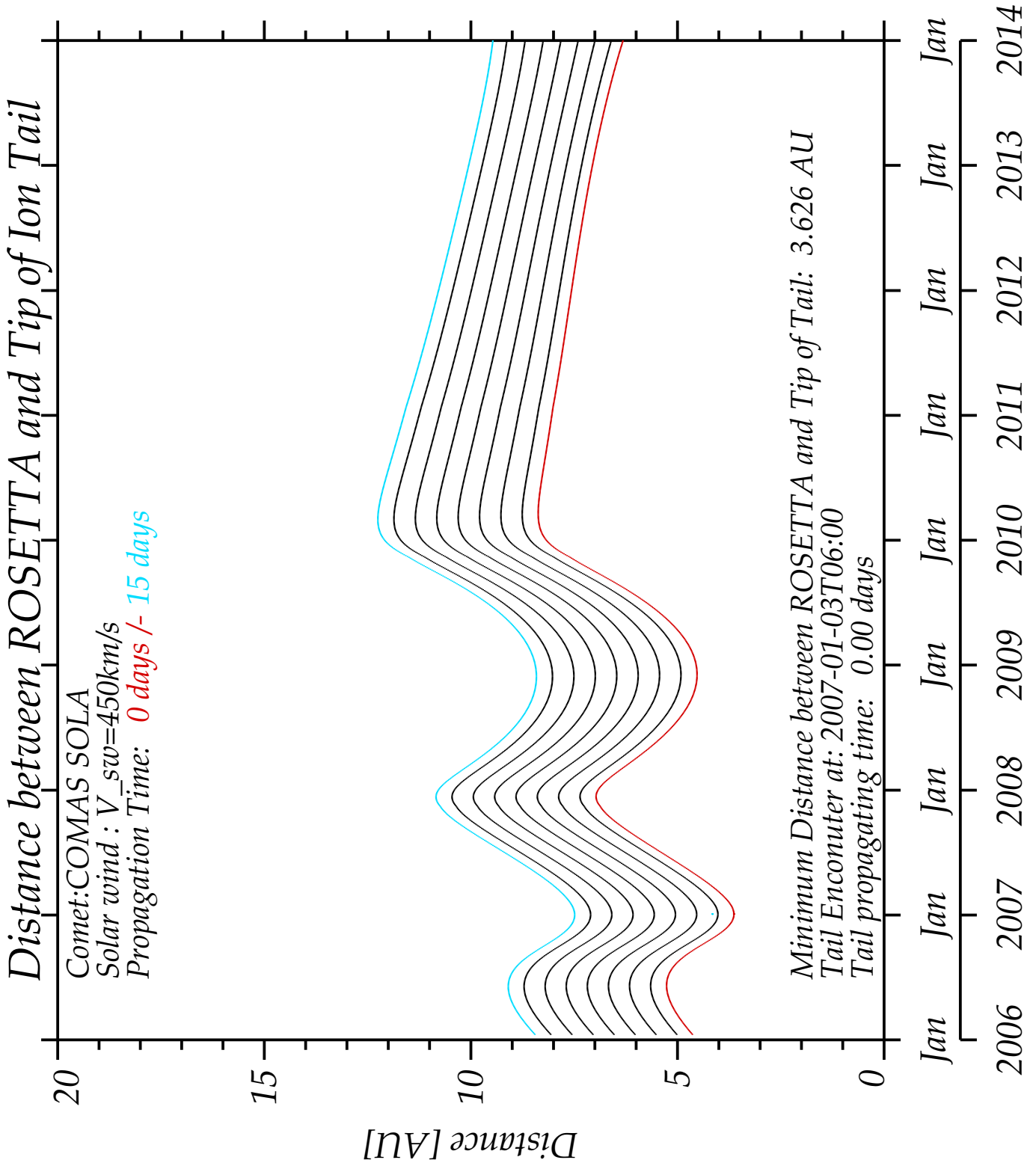


Figure 63: Minimum Distances: ROSETTA - COMAS SOLA

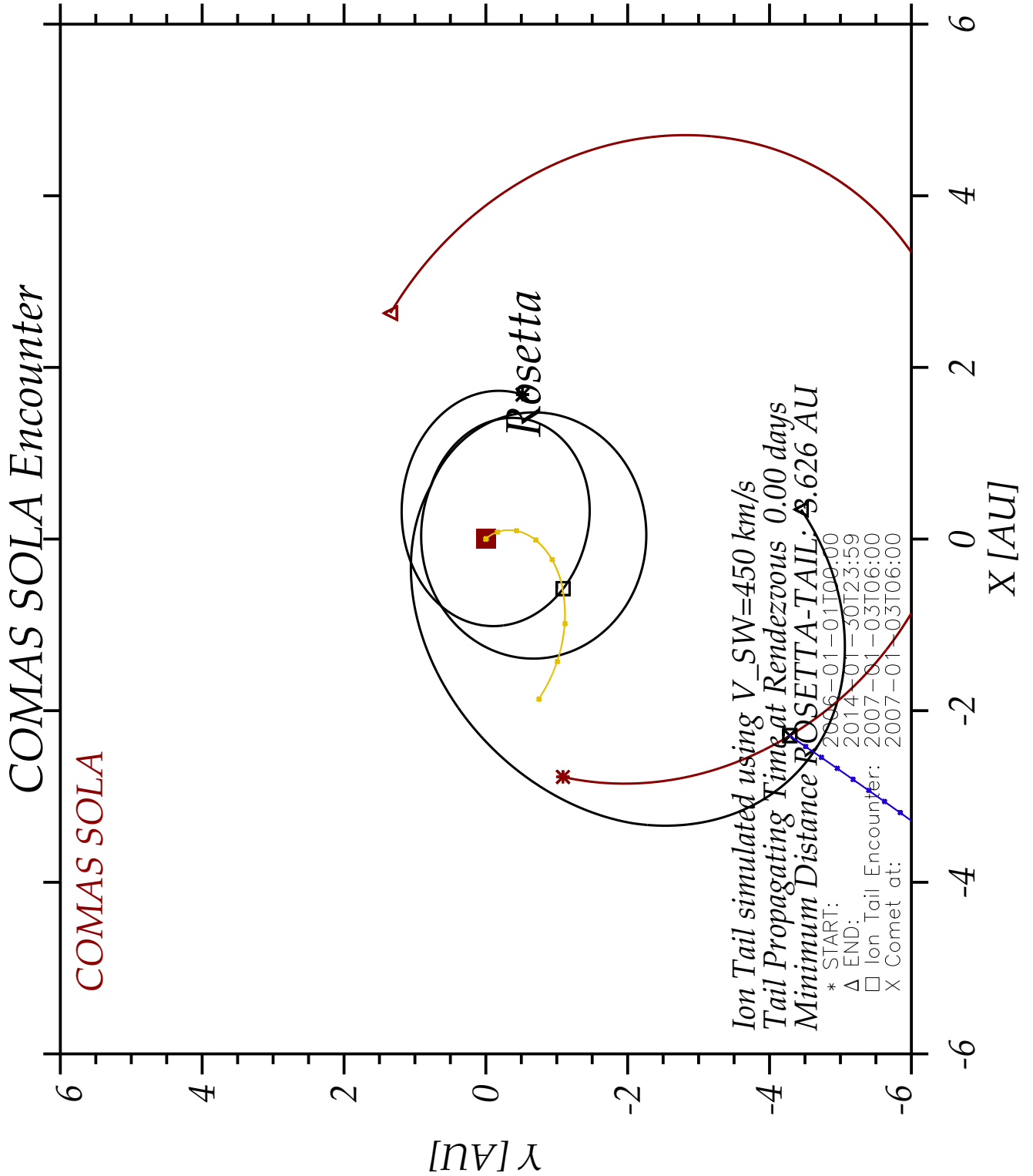


Figure 64: Overview: ROSETTA - COMAS SOLA

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## 35 Comet 33P/DANIEL

<b>Comet: 33P/DANIEL</b>
<b>No Encounter below 0.2000AU</b>

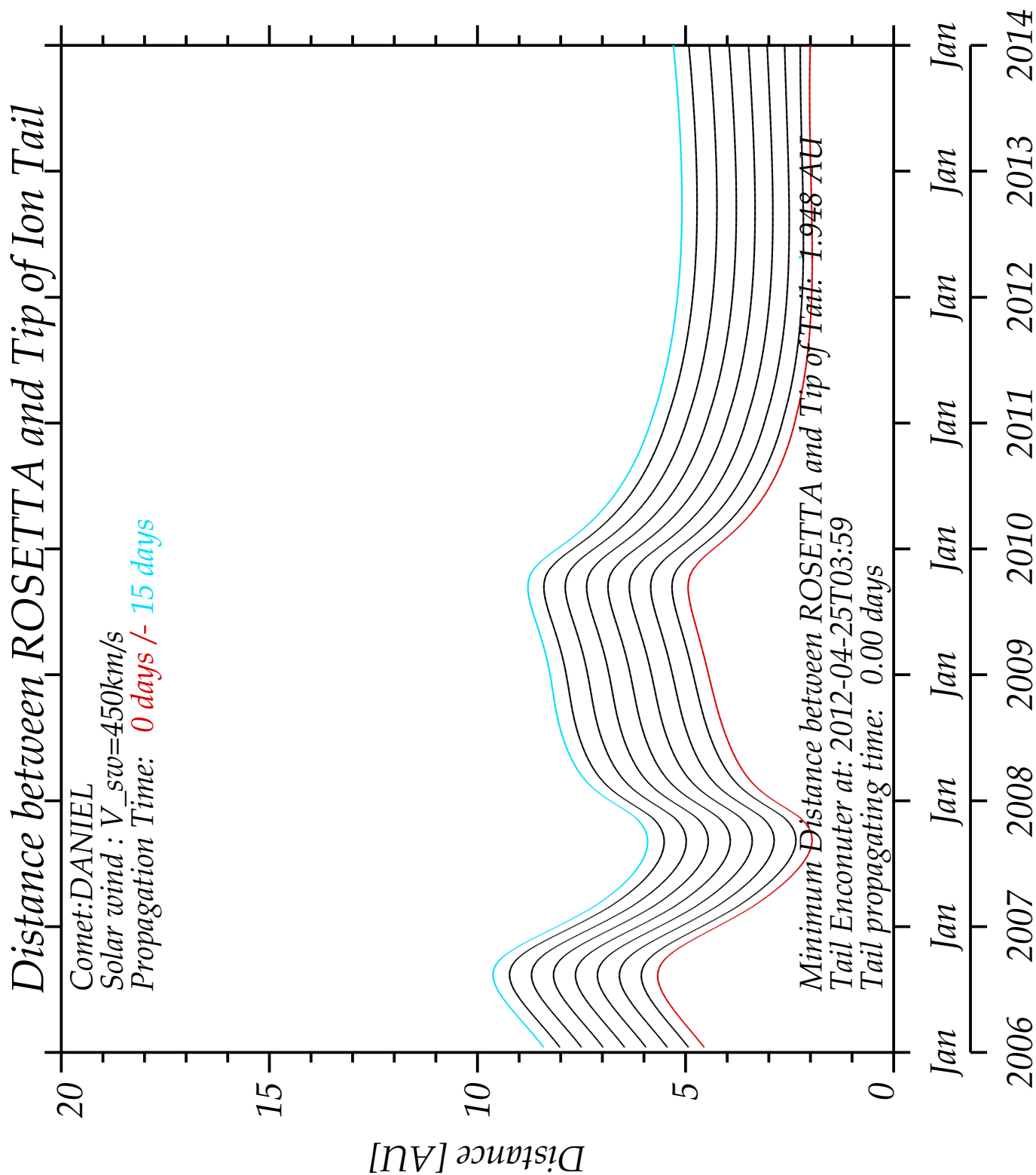


Figure 65: Minimum Distances: ROSETTA - DANIEL

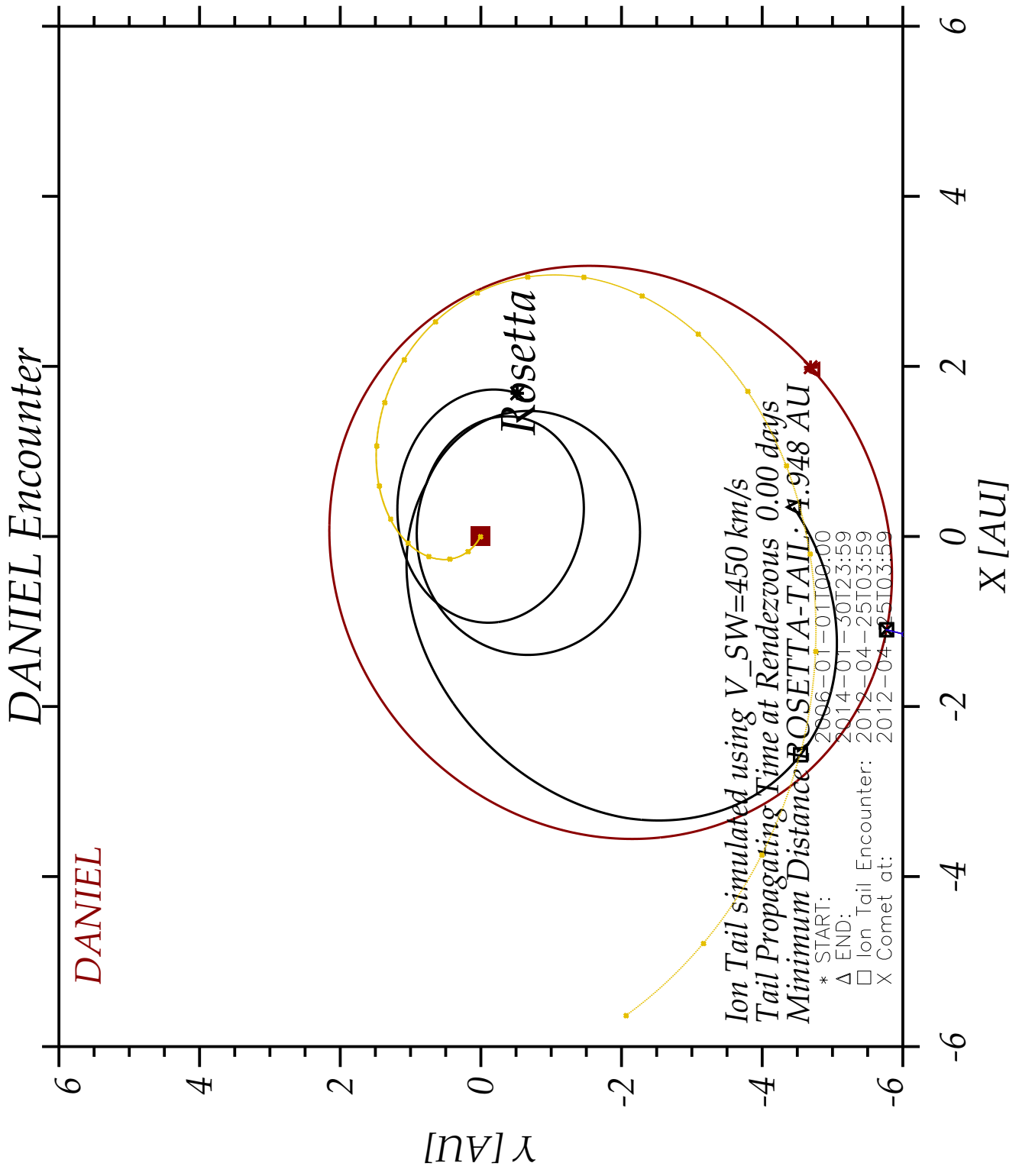


Figure 66: Overview: ROSETTA - DANIEL

<p style="text-align: center;">R O S E T T A</p>	<p>Document: RO-IGEP-TR-0020  Issue: 1  Revision: 2</p>
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## 36 Comet 34D/GALE

<p><b>Comet: 34D/GALE</b></p>
<p><b>No Encounter below 0.2000AU</b></p>

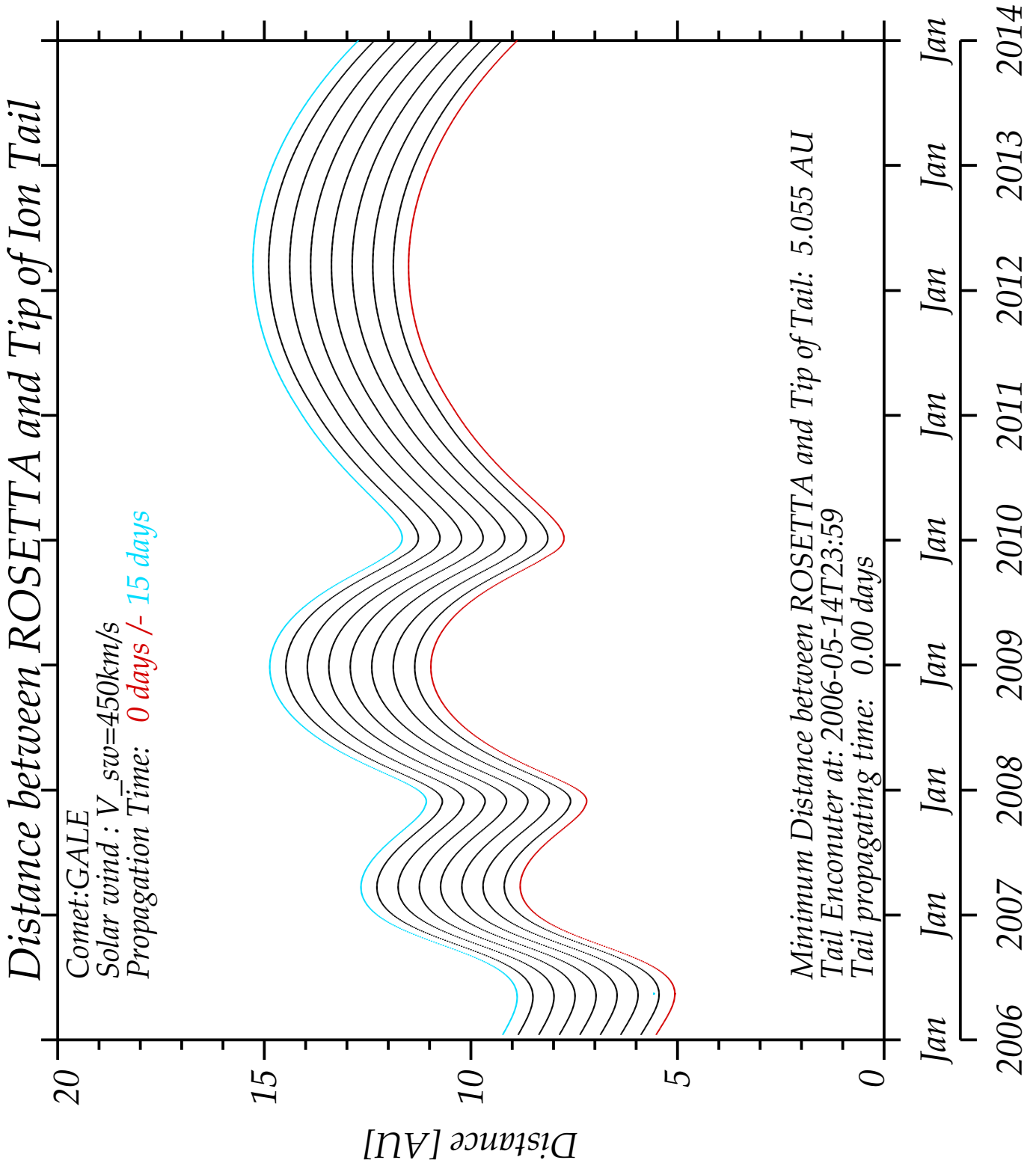


Figure 67: Minimum Distances: ROSETTA - GALE

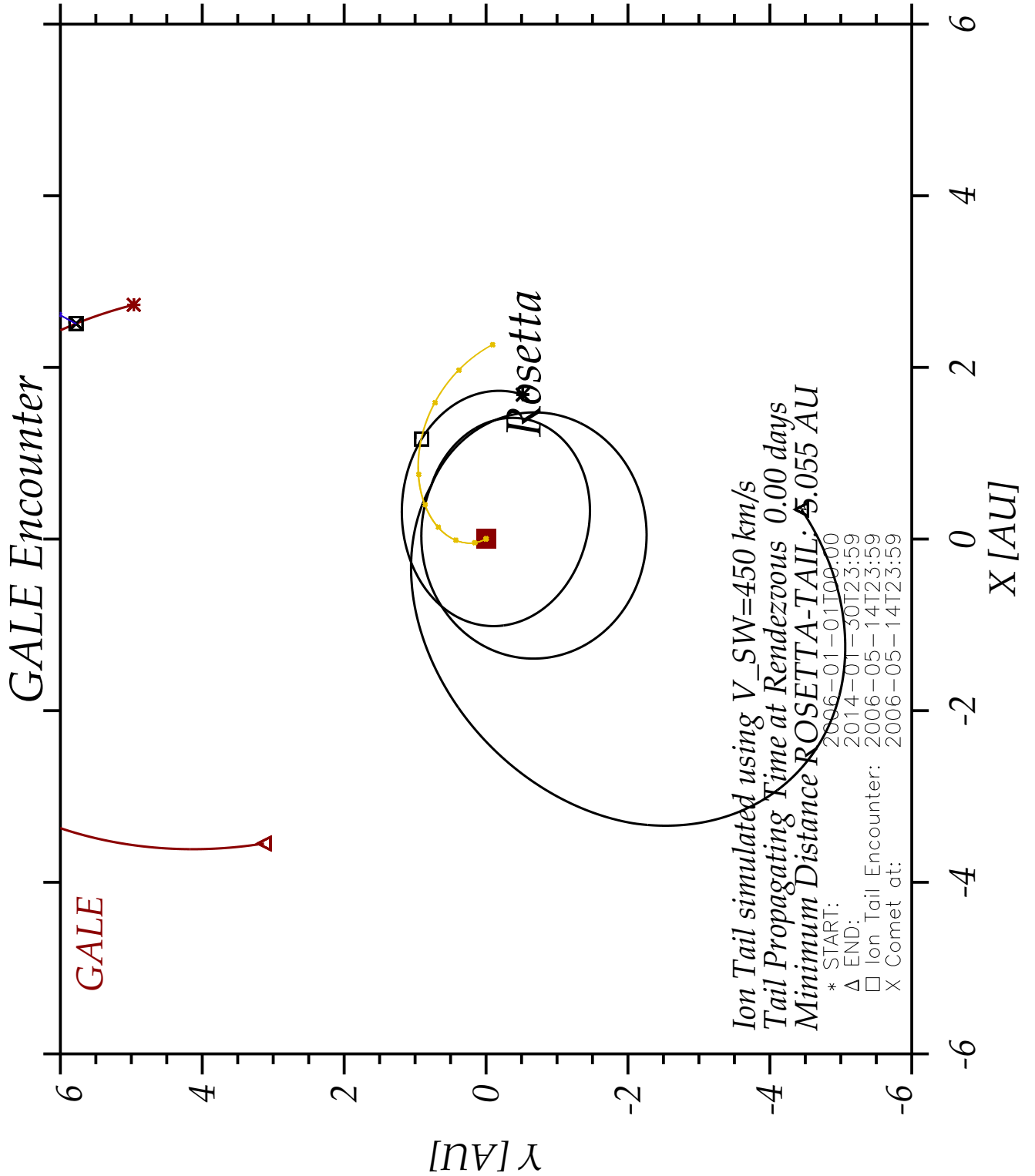


Figure 68: Overview: ROSETTA - GALE



<p style="text-align: center;">R O S E T T A</p>	<p>Document: RO-IGEP-TR-0020  Issue: 1  Revision: 2  Date: 2006-10-25  Page: 104</p>
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### 37 Comet 35P/HERSCHEL-RIGOLLET

<p><b>Comet: 35P/HERSCHEL-RIGOLLET</b></p>
<p><b>No Encounter below 0.2000AU</b></p>

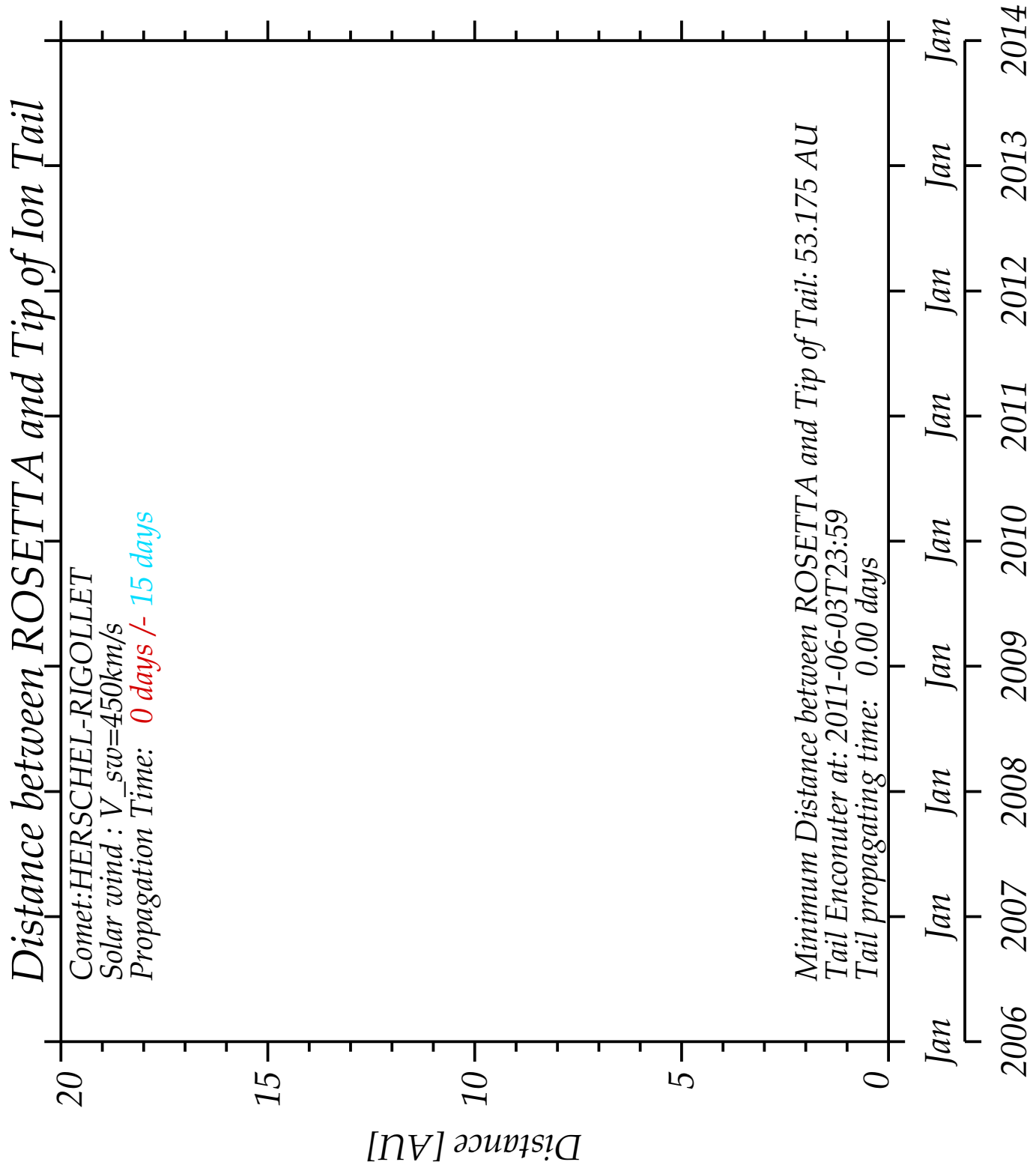


Figure 69: Minimum Distances: ROSETTA - HERSCHEL-RIGOLLET

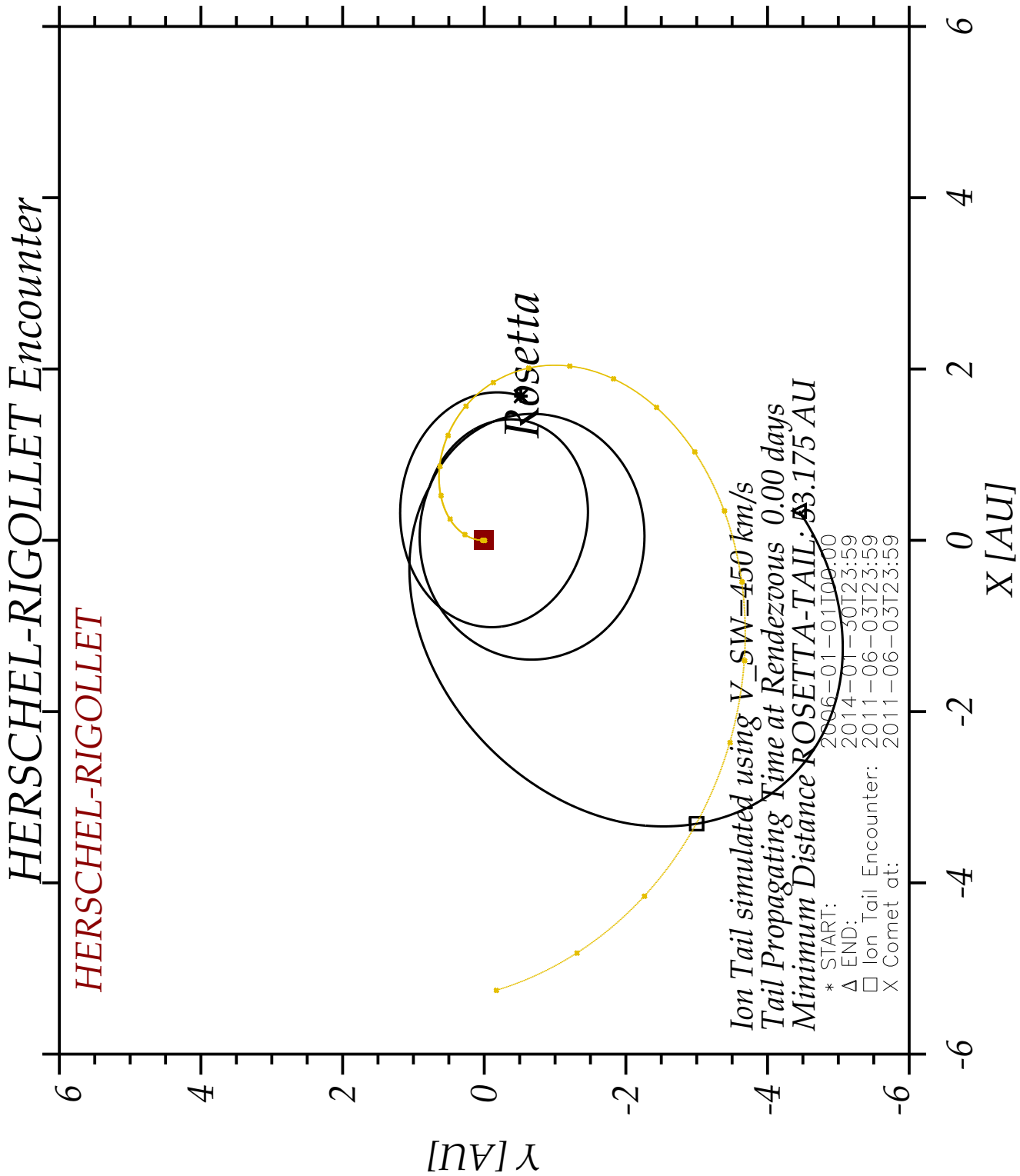


Figure 70: Overview: ROSETTA - HERSCHEL-RIGOLLET

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## 38 Comet 36P/WHIPPLE

<b>Comet: 36P/WHIPPLE</b>
<b>No Encounter below 0.2000AU</b>

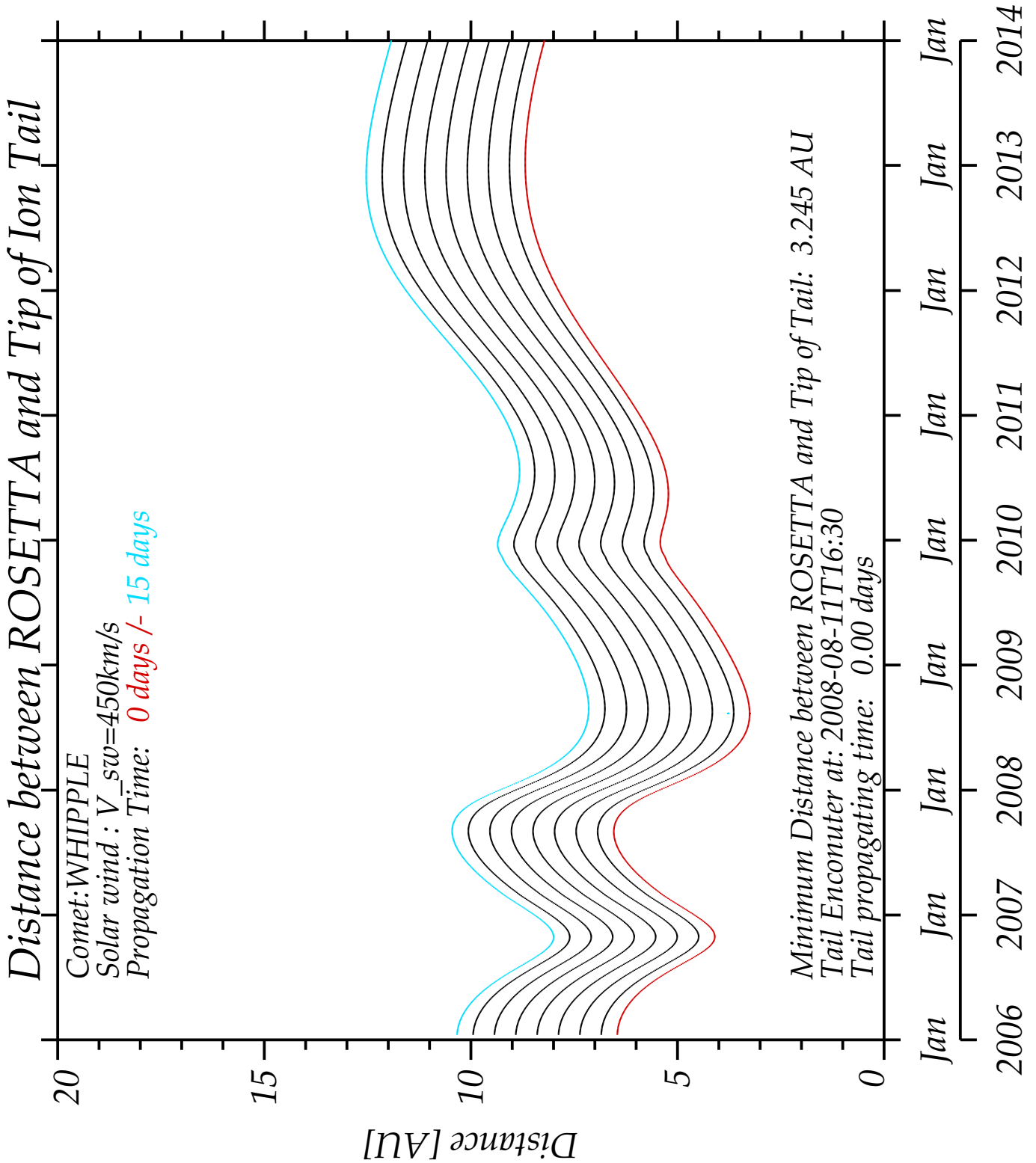


Figure 71: Minimum Distances: ROSETTA - WHIPPLE

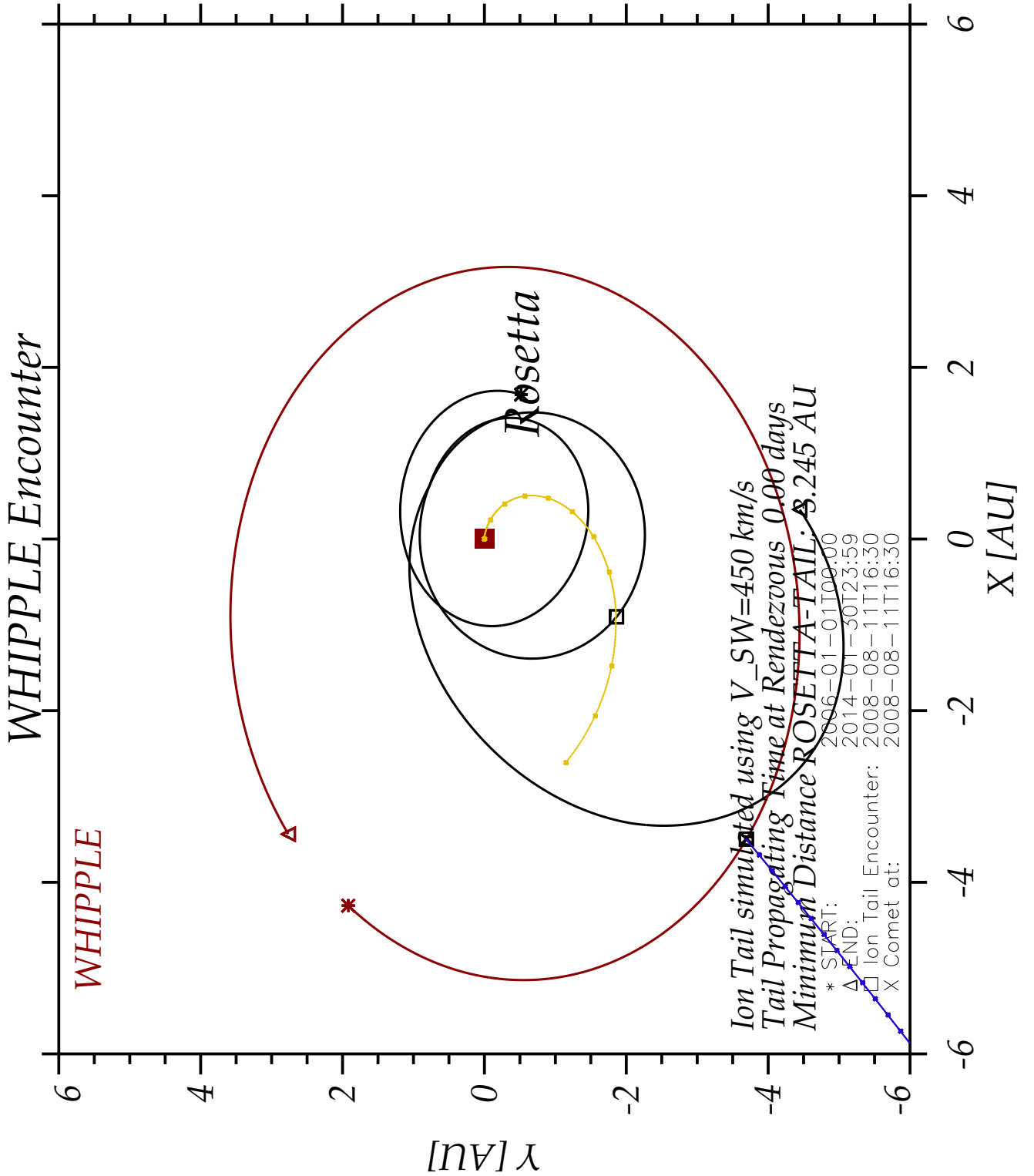


Figure 72: Overview: ROSETTA - WHIPPLE

<h1 style="text-align: center;">R O S E T T A</h1>	Document: RO-IGEP-TR-0020 Issue: 1 Revision: 2 Date: 2006-10-25 Page: 110
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## 39 Comet 37P/FORBES

<b>Comet: 37P/FORBES</b>
<b>No Encounter below 0.2000AU</b>

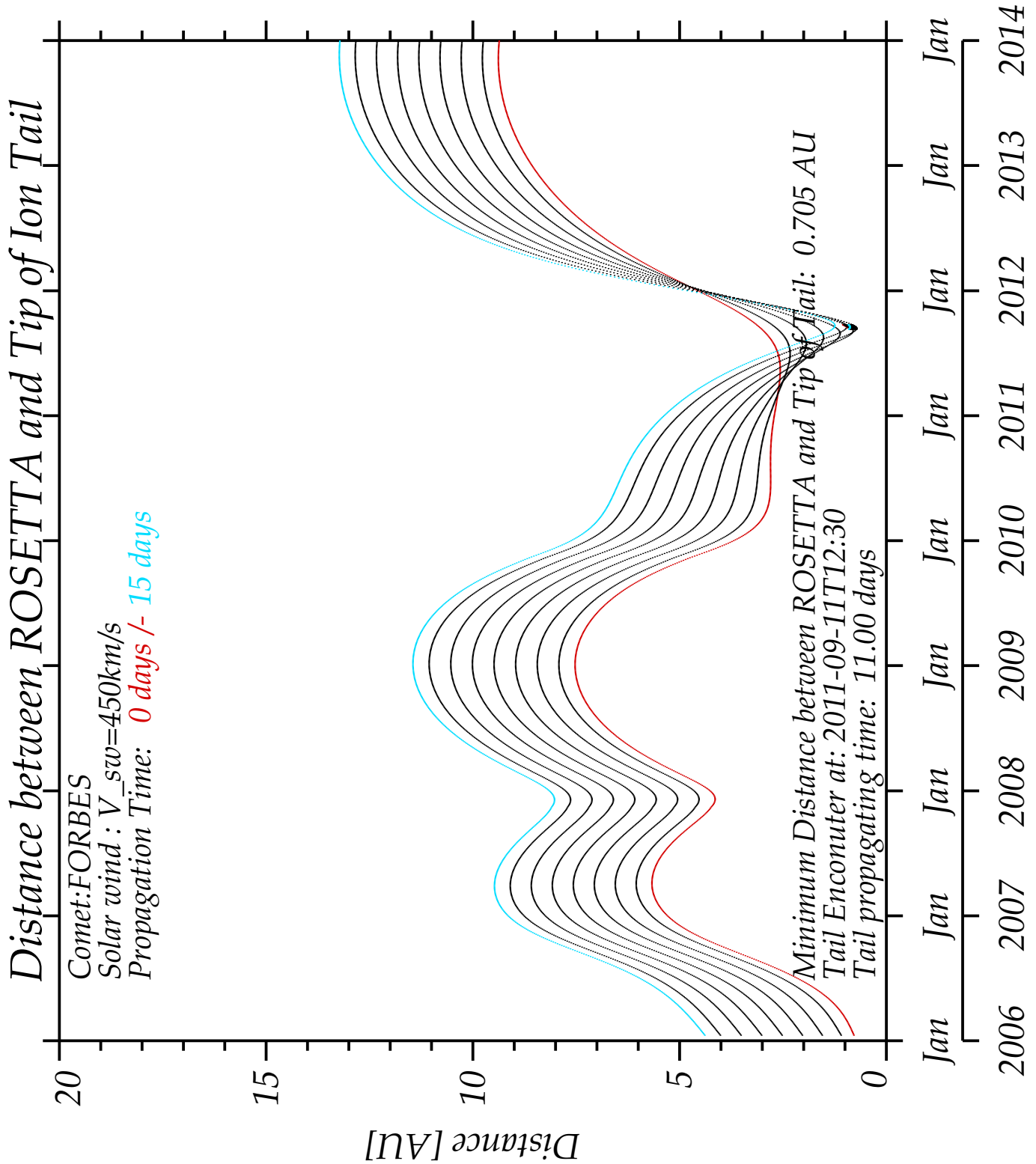


Figure 73: Minimum Distances: ROSETTA - FORBES



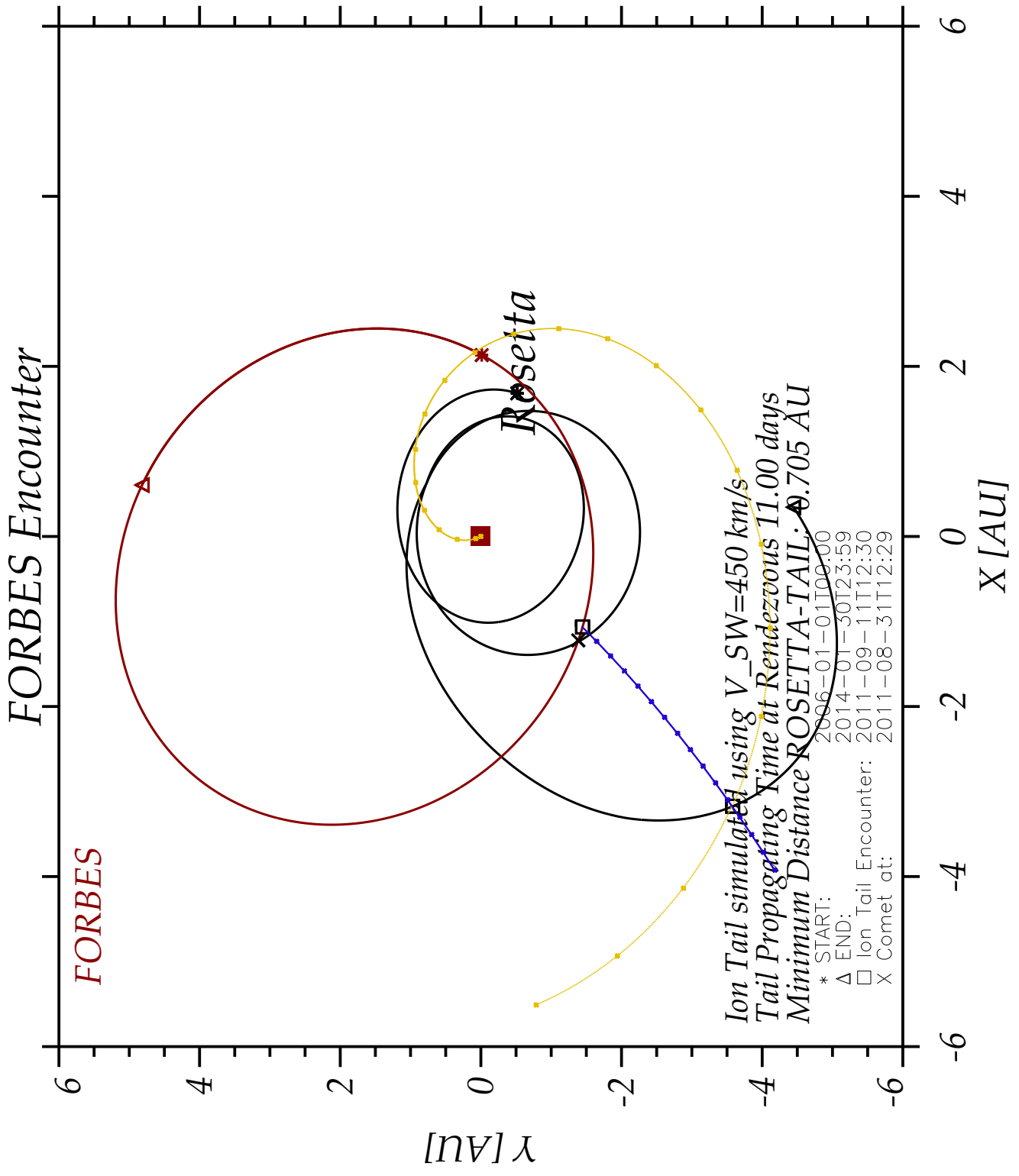


Figure 74: Overview: ROSETTA - FORBES

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## 40 Comet 38P/STEPHAN-OTERMA

<b>Comet: 38P/STEPHAN-OTERMA</b>
<b>No Encounter below 0.2000AU</b>

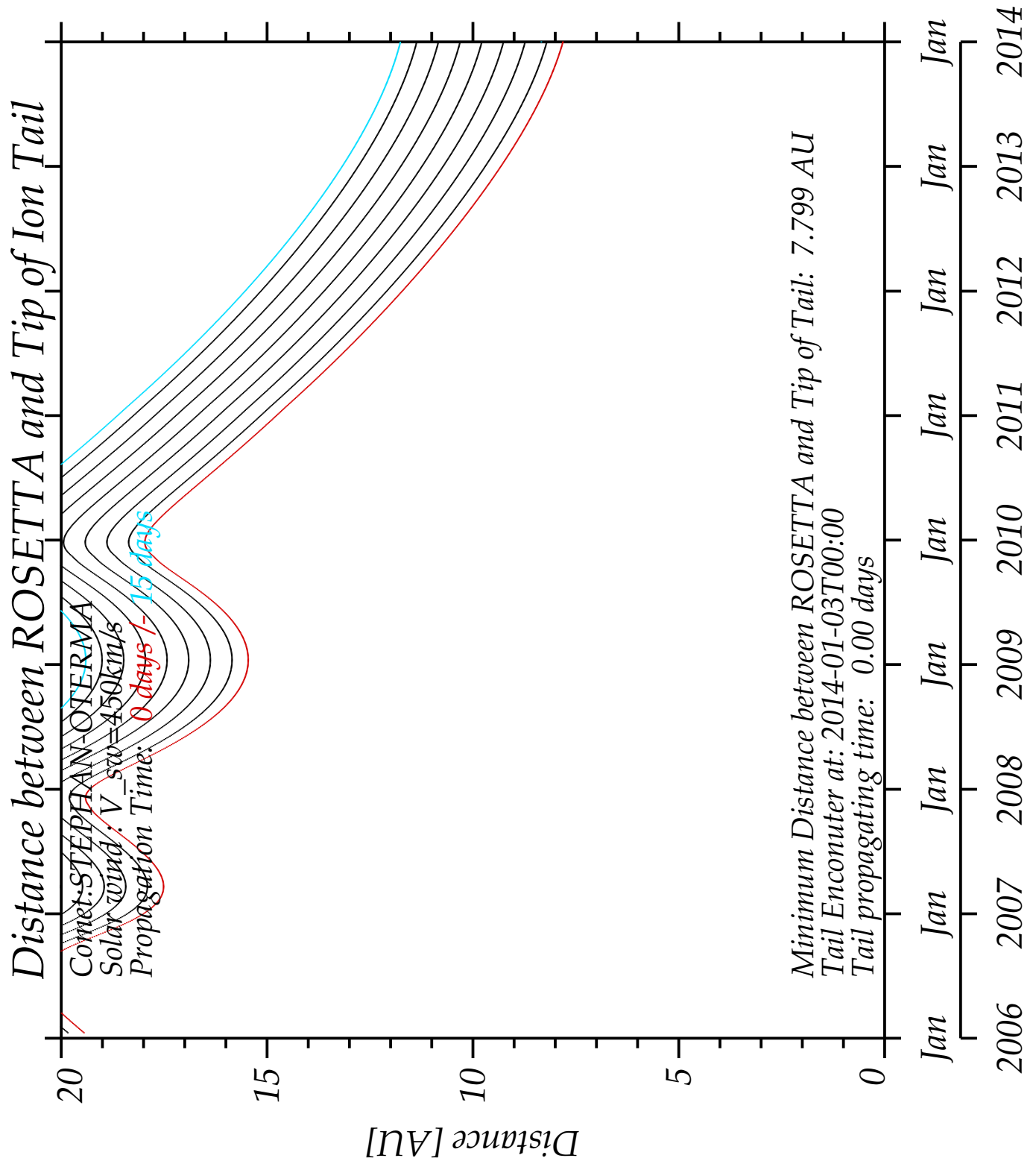


Figure 75: Minimum Distances: ROSETTA - STEPHAN-OTERMA

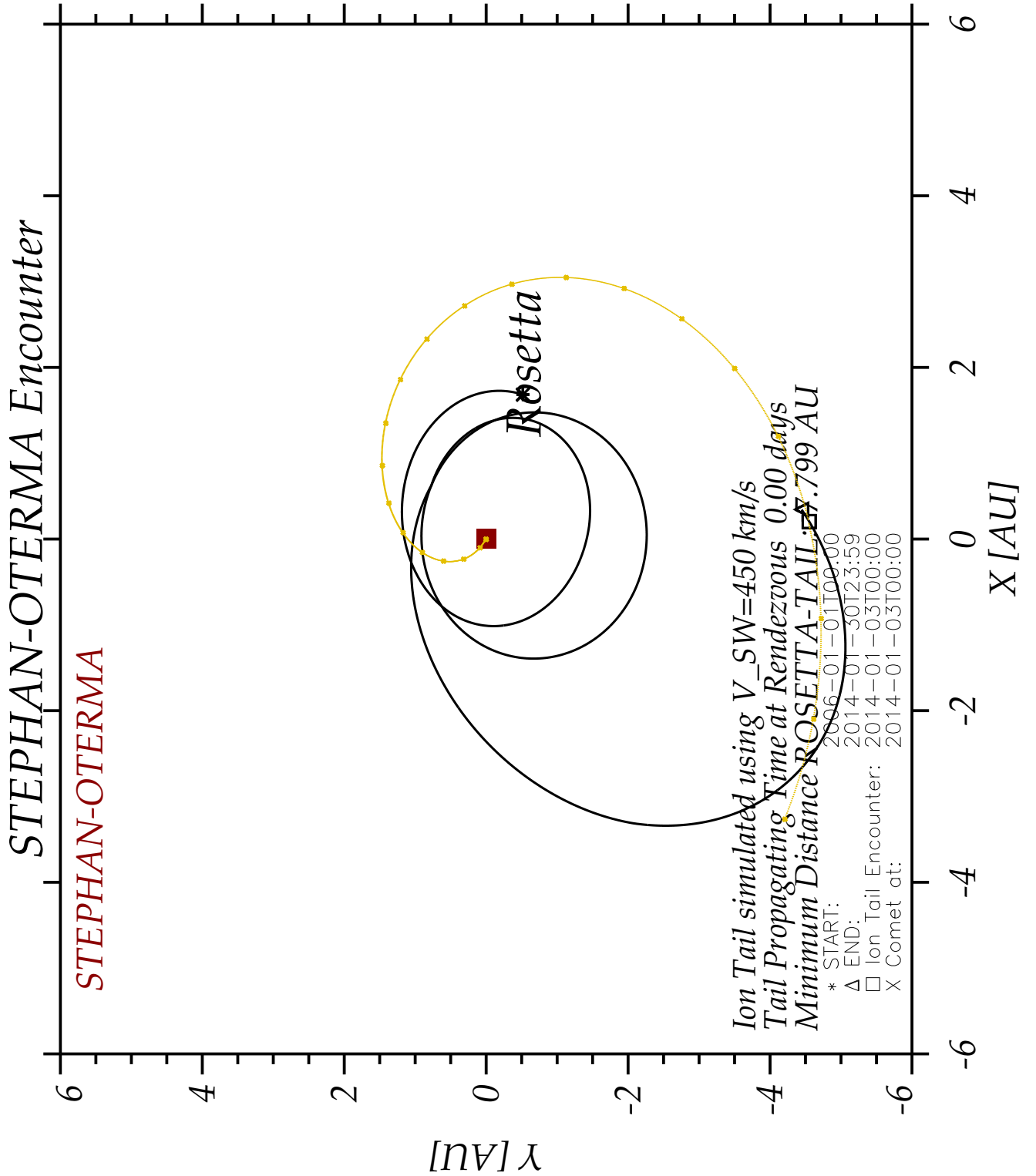


Figure 76: Overview: ROSETTA - STEPHAN-OTERMA

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## 41 Comet 39P/OTERMA

<b>Comet: 39P/OTERMA</b>
<b>No Encounter below 0.2000AU</b>

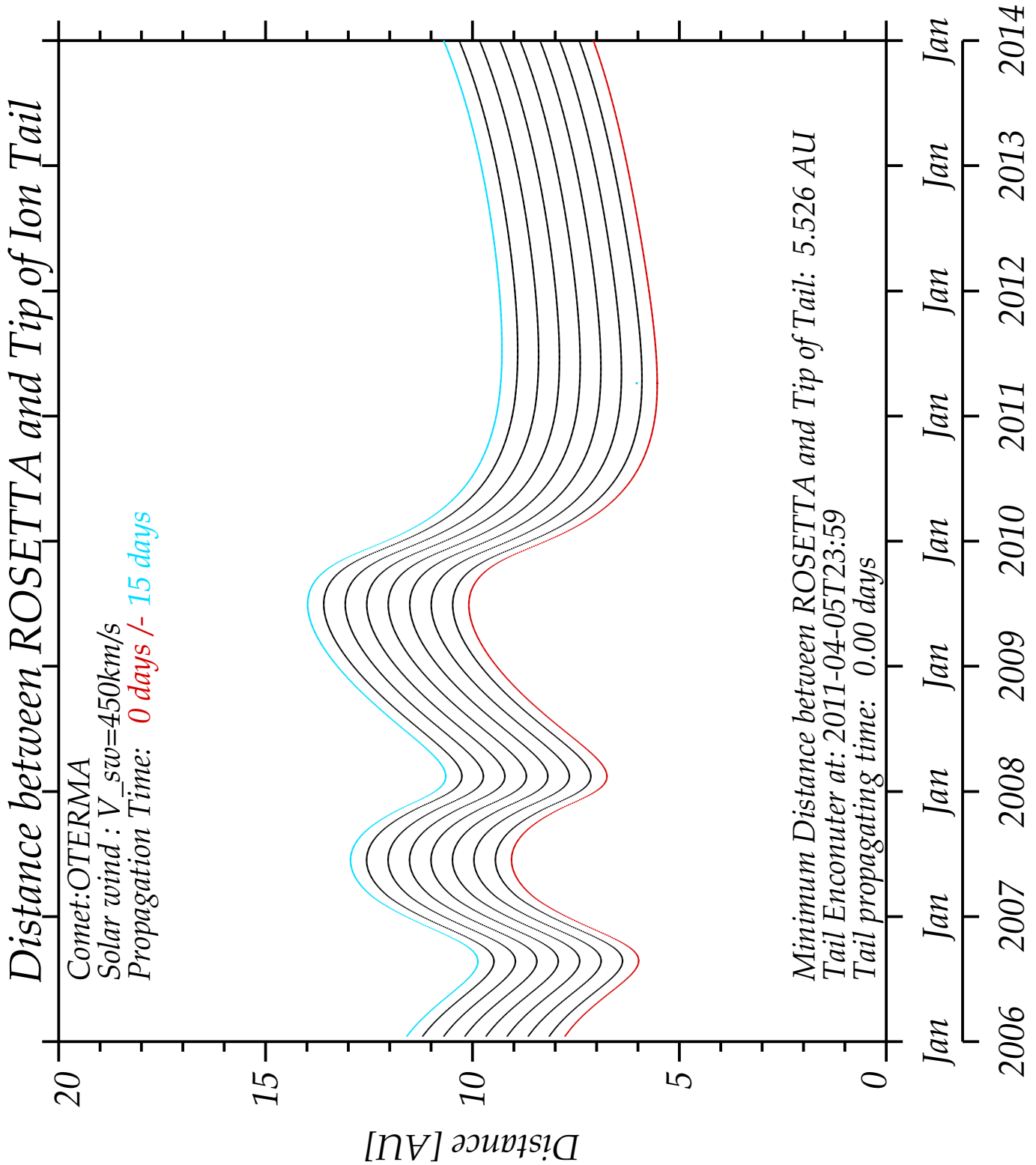


Figure 77: Minimum Distances: ROSETTA - OTERMA

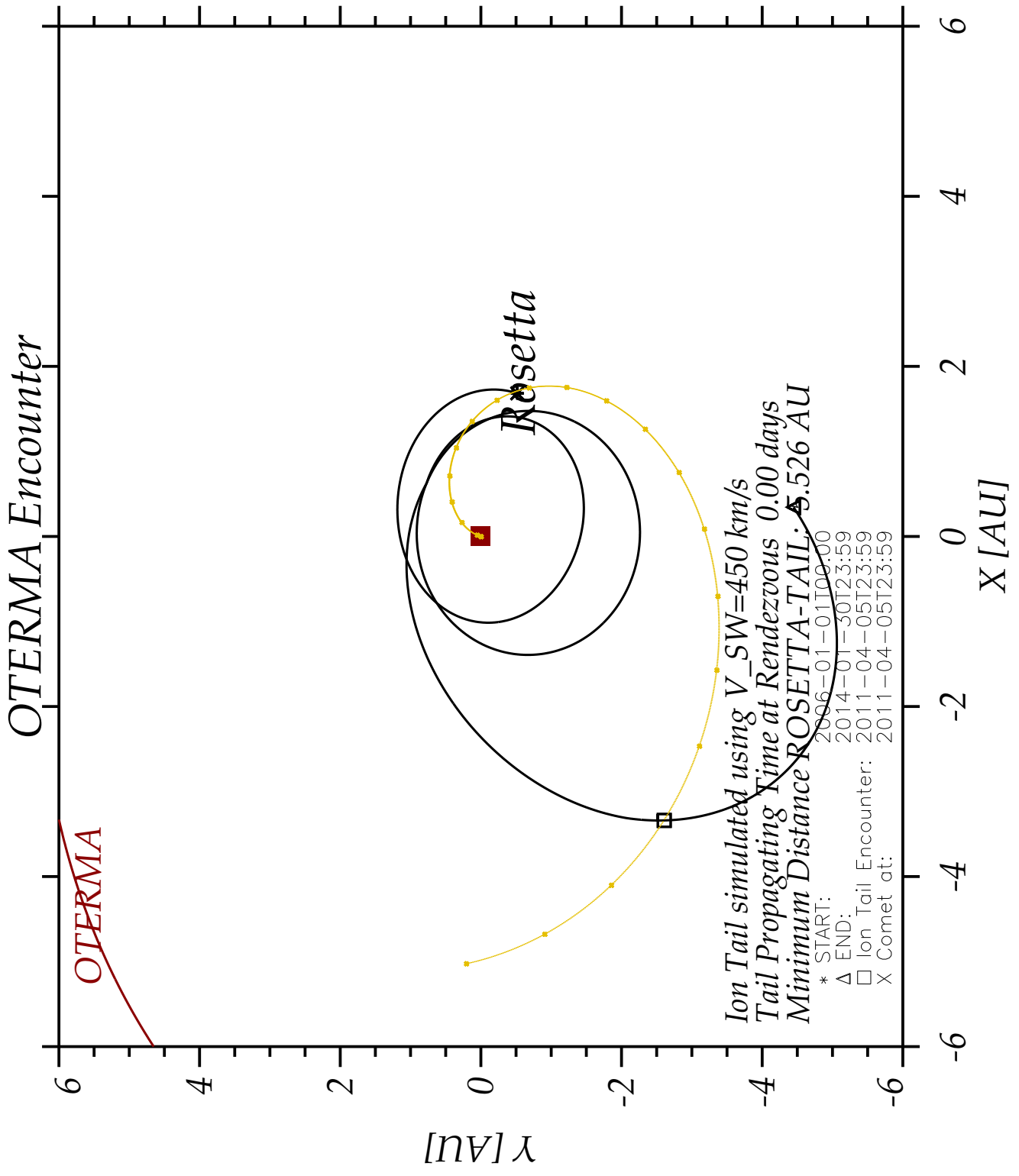


Figure 78: Overview: ROSETTA - OTERMA

<h1 style="margin: 0;">R O S E T T A</h1>	Document: RO-IGEP-TR-0020 Issue: 1 Revision: 2
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## 42 Comet 40P/VAISALA 1

<b>Comet: 40P/VAISALA 1</b>
<b>No Encounter below 0.2000AU</b>



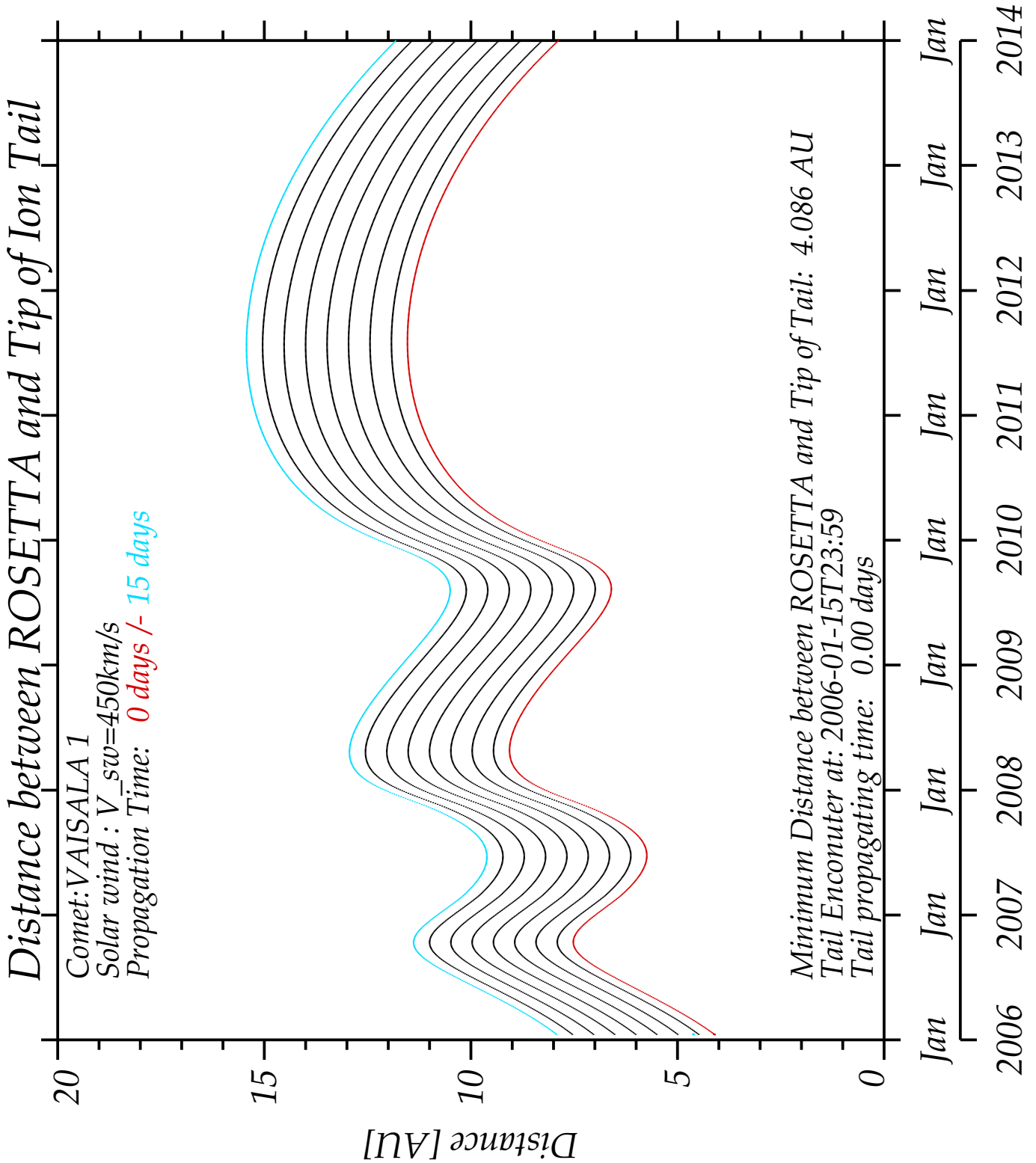


Figure 79: Minimum Distances: ROSETTA - VAISALA 1

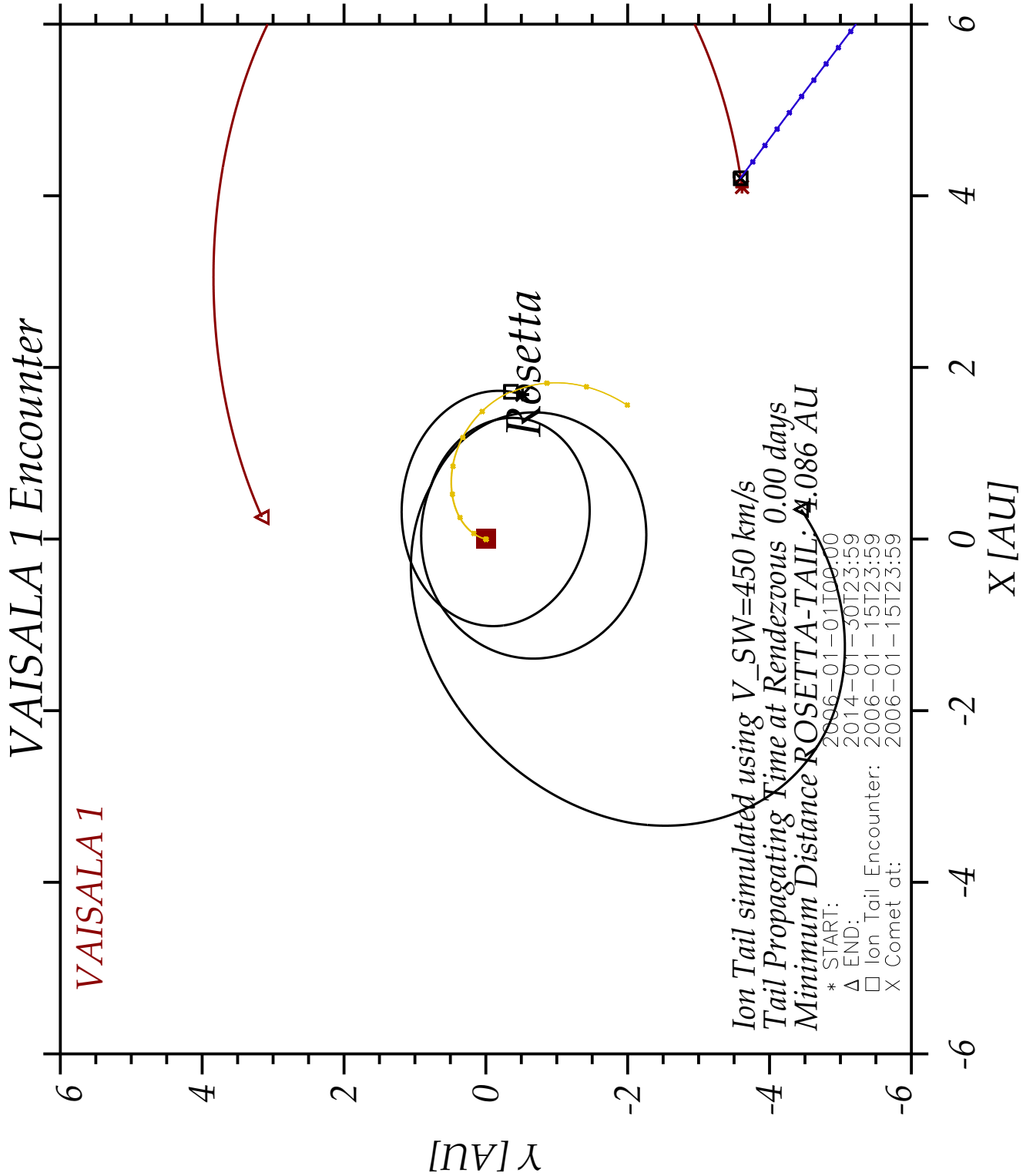


Figure 80: Overview: ROSETTA - VAISALA 1

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### 43 Comet 41P/TUTTLE-GIACOBINI-KRESAK

<b>Comet: 41P/TUTTLE-GIACOBINI-KRESAK</b>
<b>No Encounter below 0.2000AU</b>

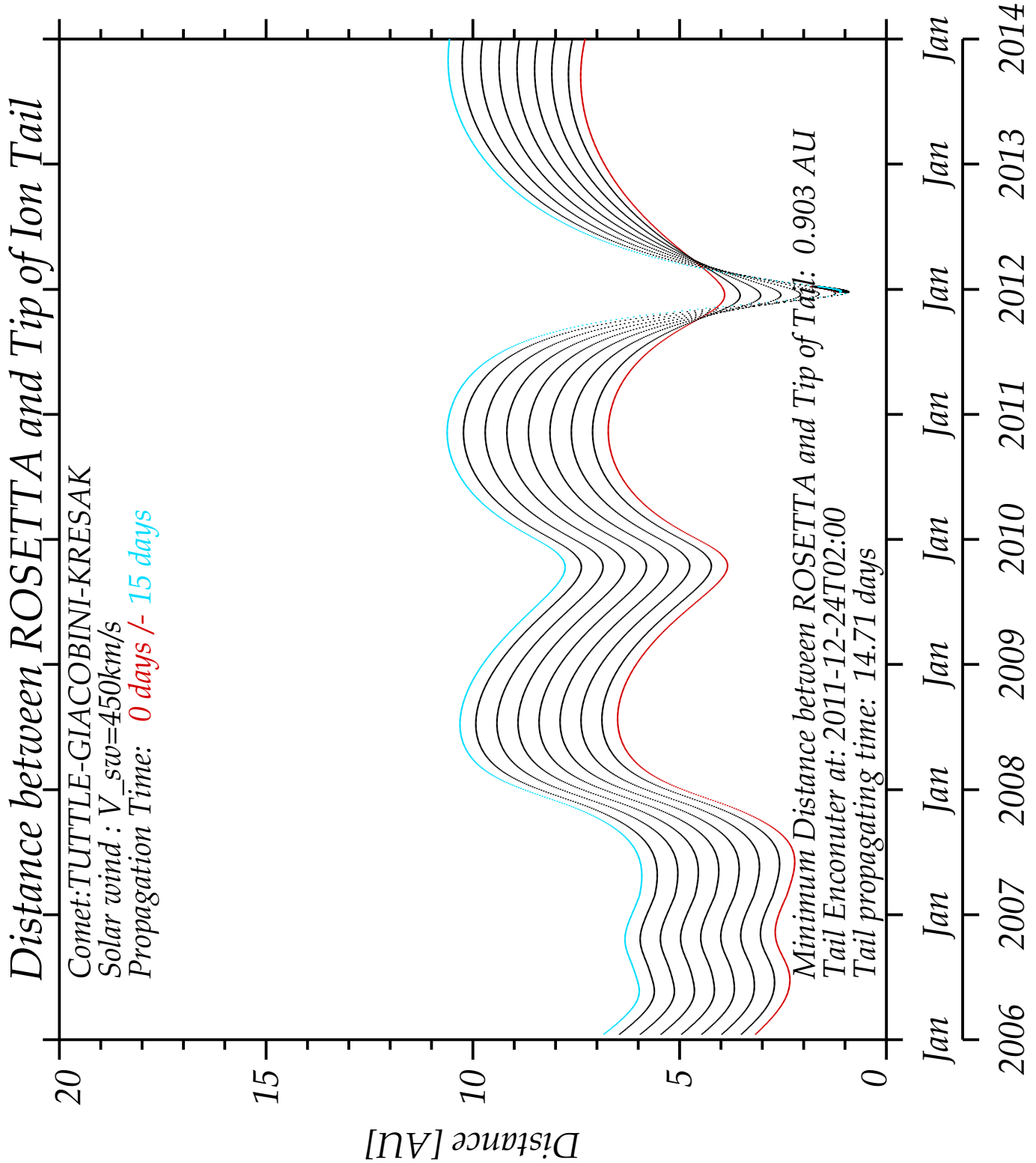


Figure 81: Minimum Distances: ROSETTA - TUTTLE-GIACOBINI-KRESAK

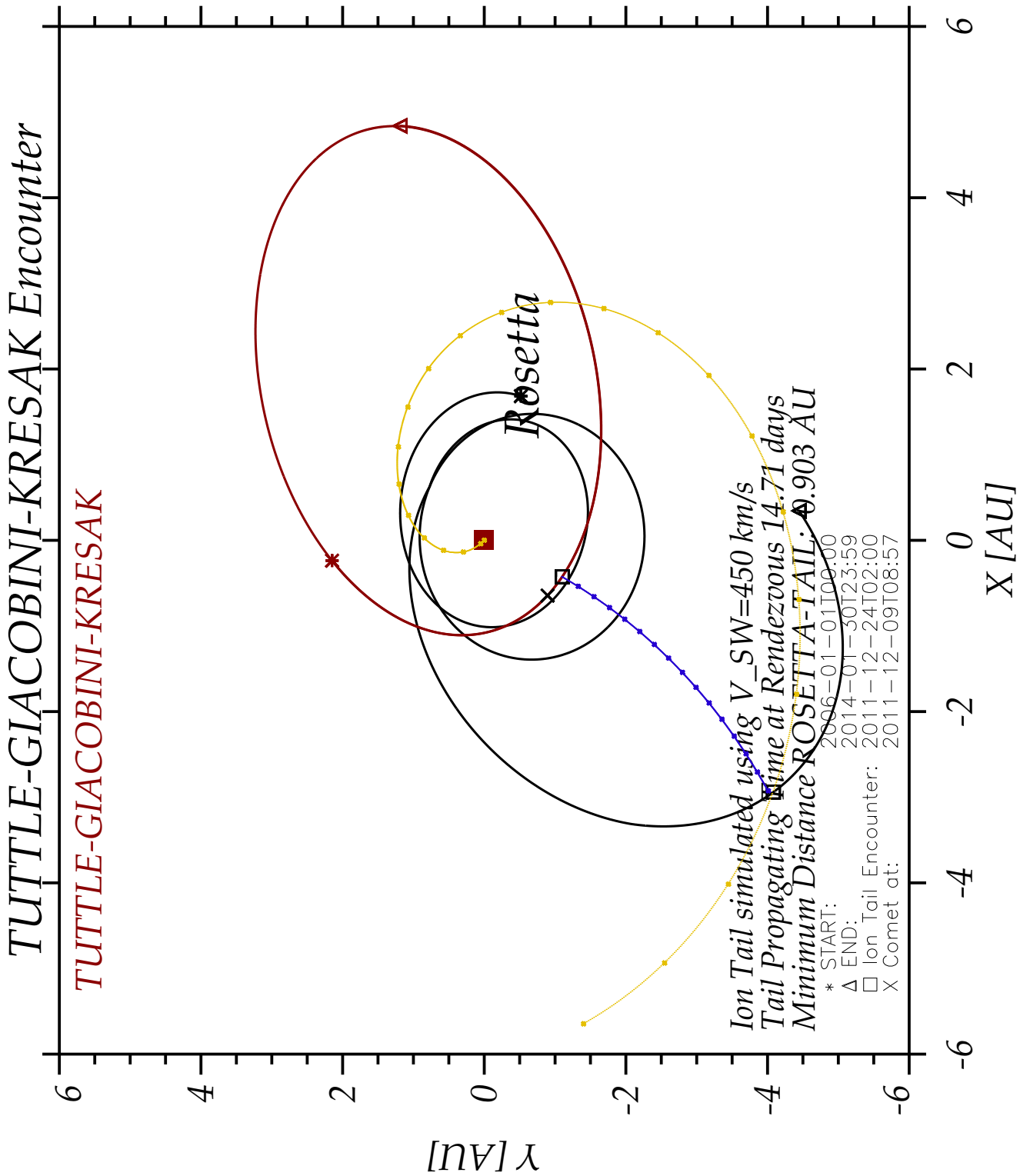


Figure 82: Overview: ROSETTA - TUTTLE-GIACOBINI-KRESAK

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## **44 Comet 42P/NEUJMIN 3**

<b>Comet: 42P/NEUJMIN 3</b>
<b>No Encounter below 0.2000AU</b>

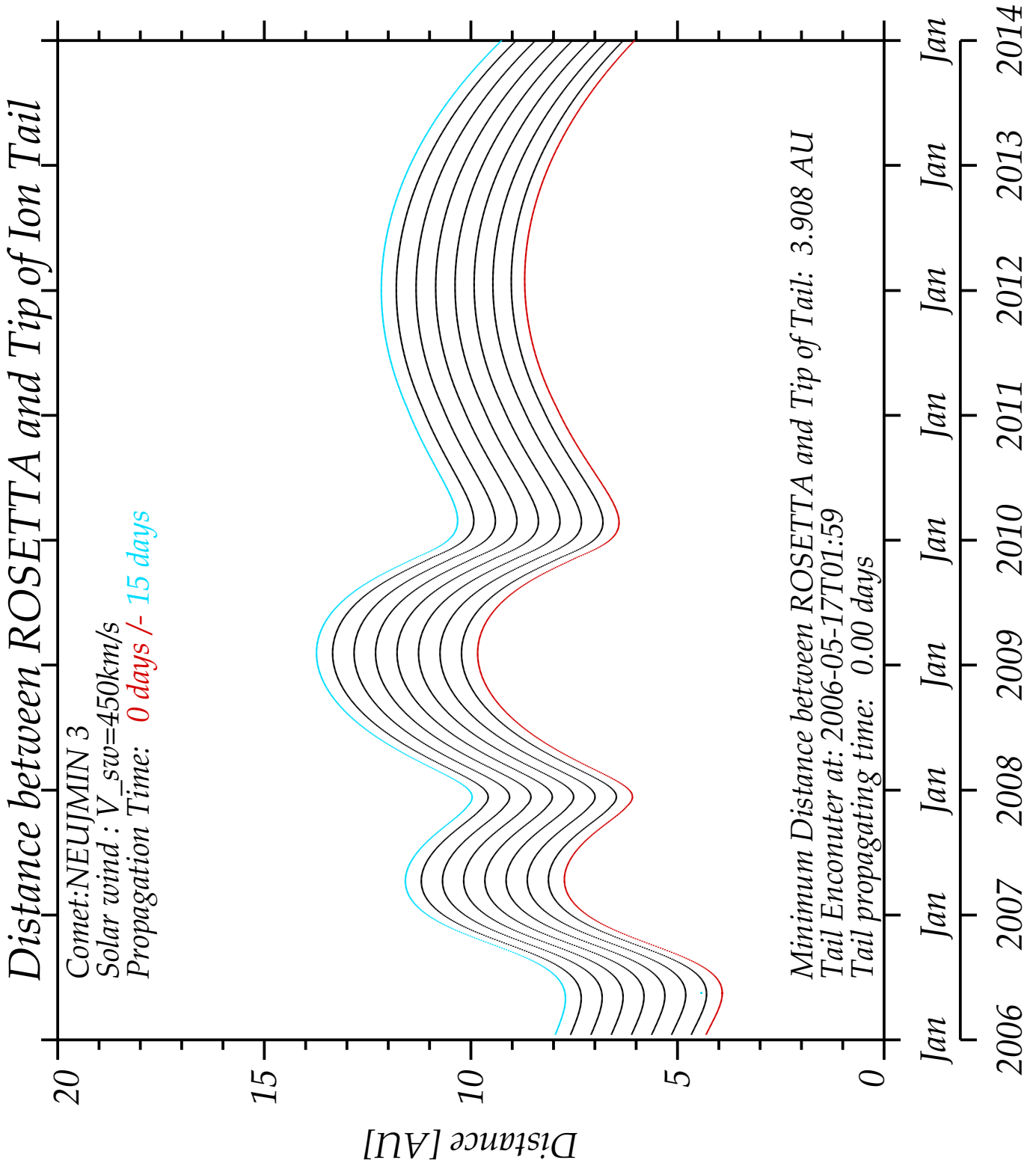


Figure 83: Minimum Distances: ROSETTA - NEUJMIN 3

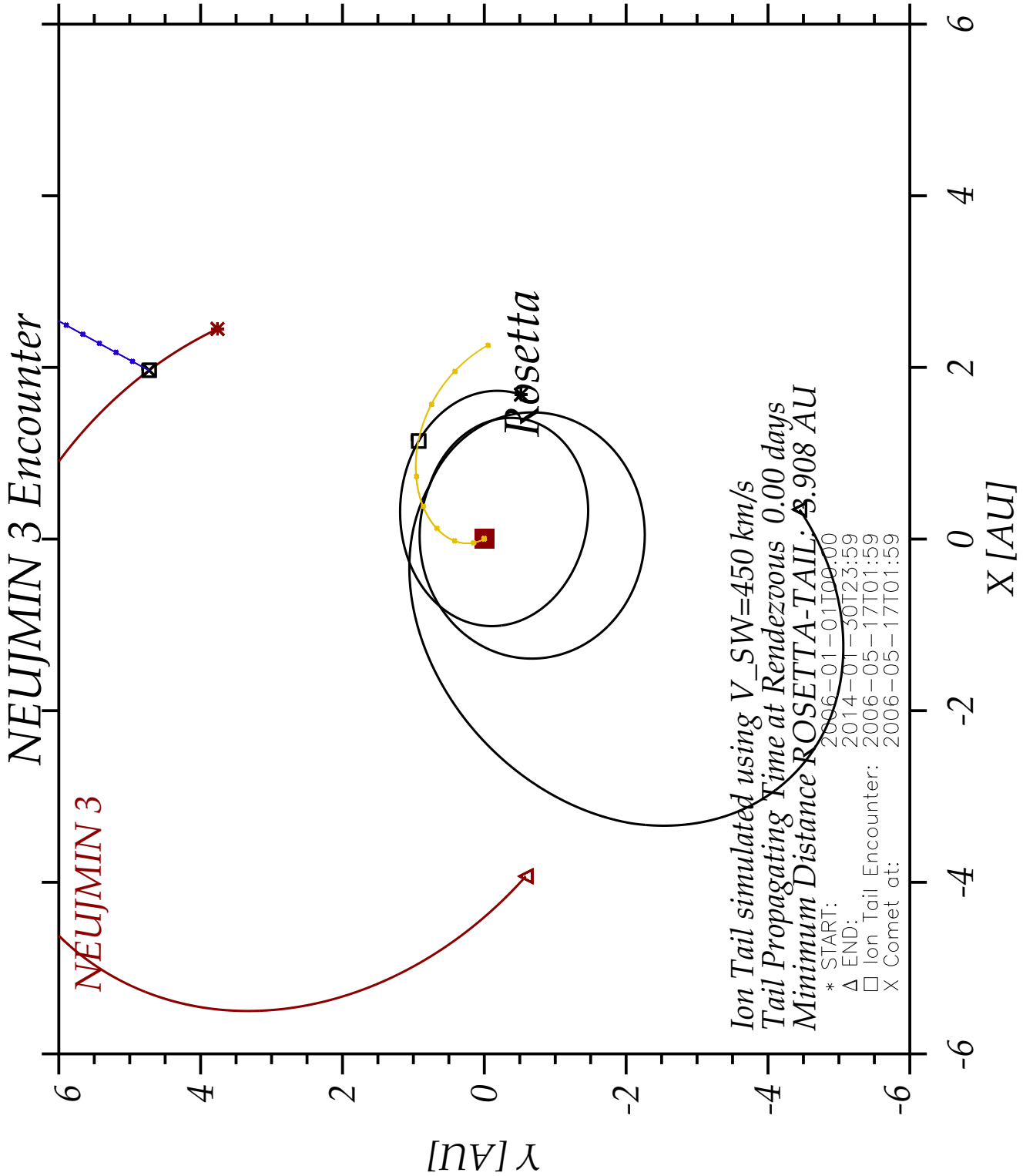


Figure 84: Overview: ROSETTA - NEUJMIN 3



<p style="text-align: center;">R O S E T T A</p>	<p>Document: RO-IGEP-TR-0020  Issue: 1  Revision: 2  Date: 2006-10-25  Page: 128</p>
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## 45 Comet 43P/WOLF-HARRINGTON

<p><b>Comet: 43P/WOLF-HARRINGTON</b></p>
<p><b>No Encounter below 0.2000AU</b></p>

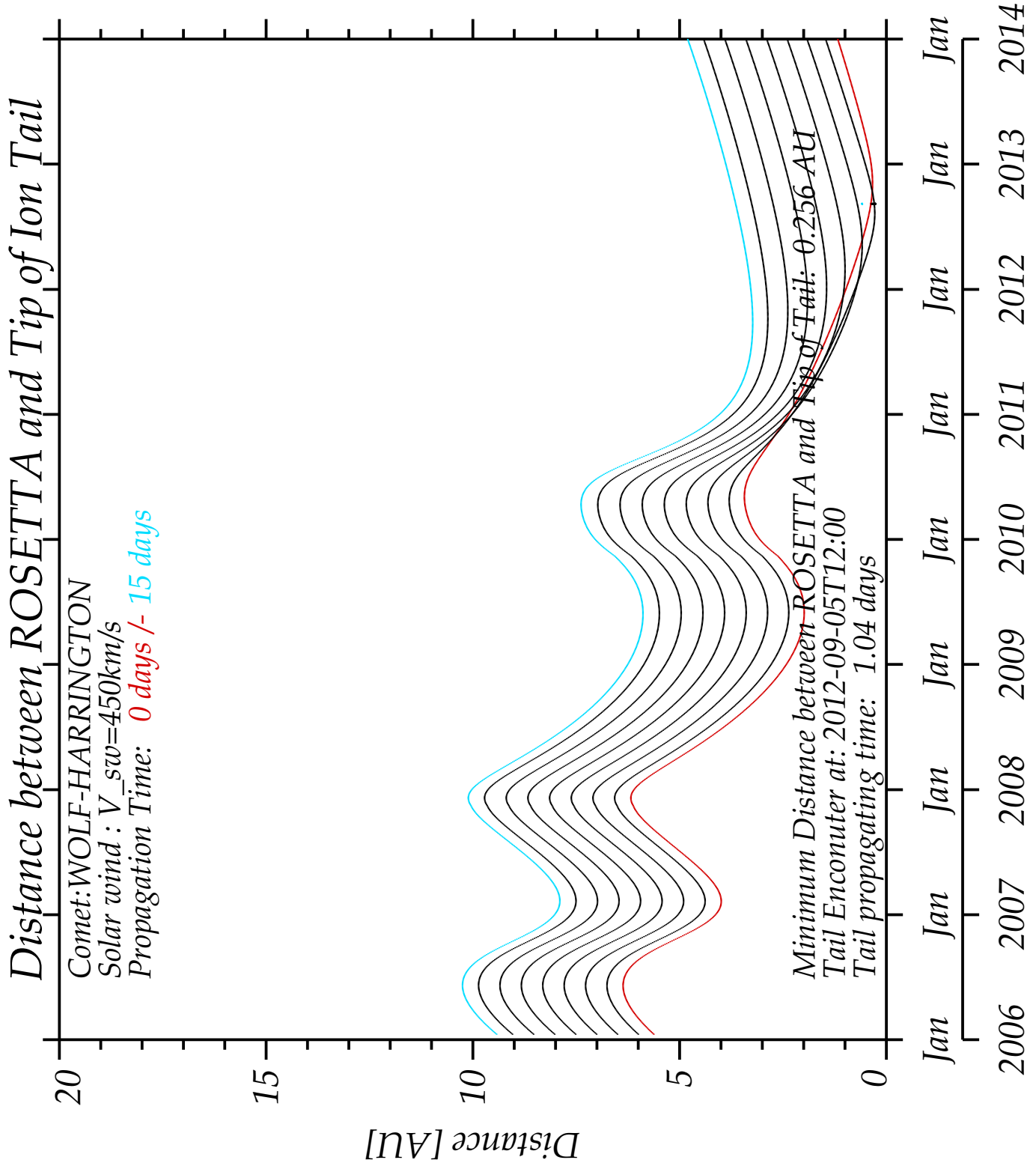


Figure 85: Minimum Distances: ROSETTA - WOLF-HARRINGTON

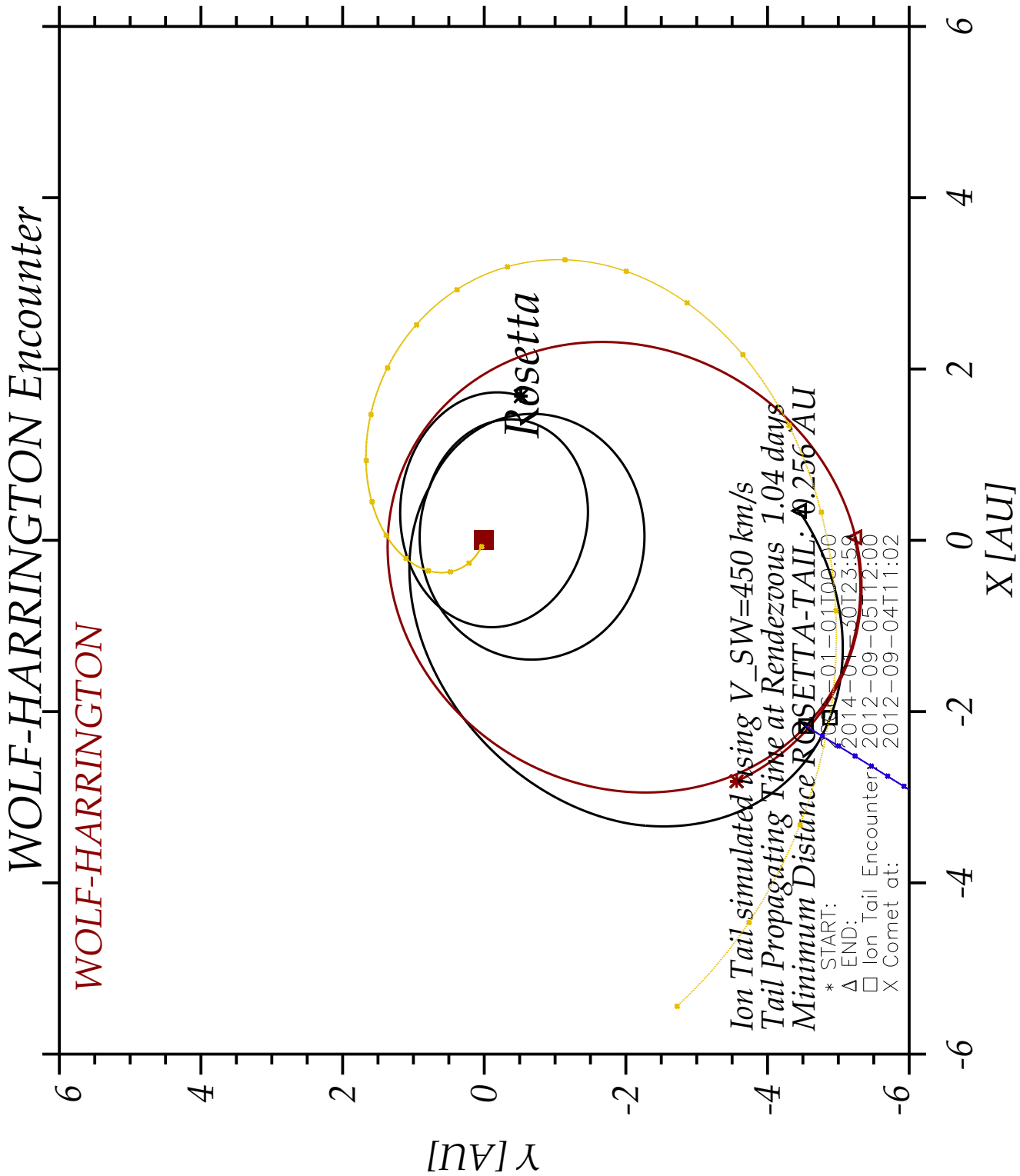


Figure 86: Overview: ROSETTA - WOLF-HARRINGTON

<p style="text-align: center;">R O S E T T A</p>	<p>Document: RO-IGEP-TR-0020 Issue: 1 Revision: 2</p>
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## 46 Comet 44P/REINMUTH 2

<p><b>Comet: 44P/REINMUTH 2</b></p>
<p><b>No Encounter below 0.2000AU</b></p>

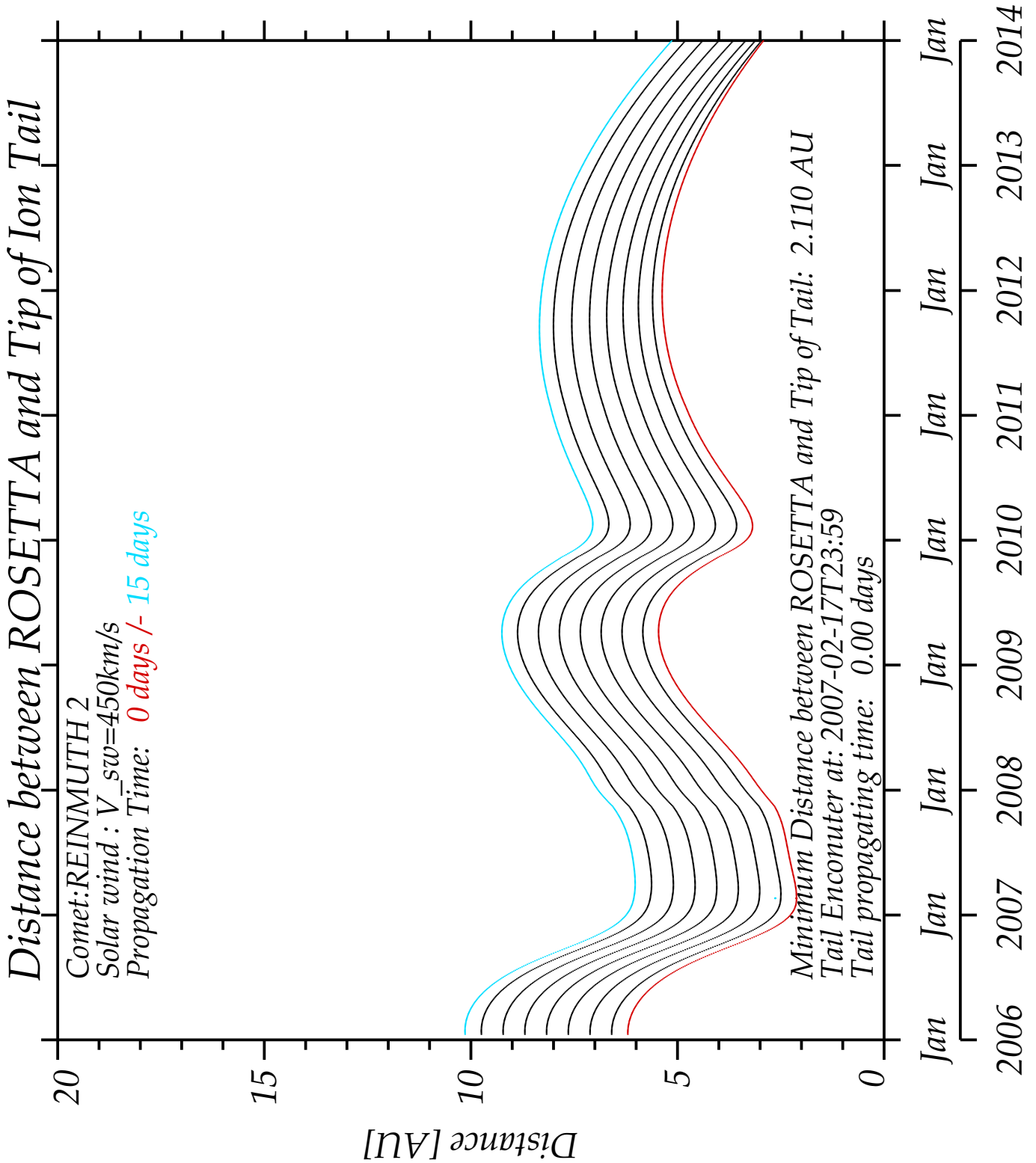


Figure 87: Minimum Distances: ROSETTA - REINMUTH 2

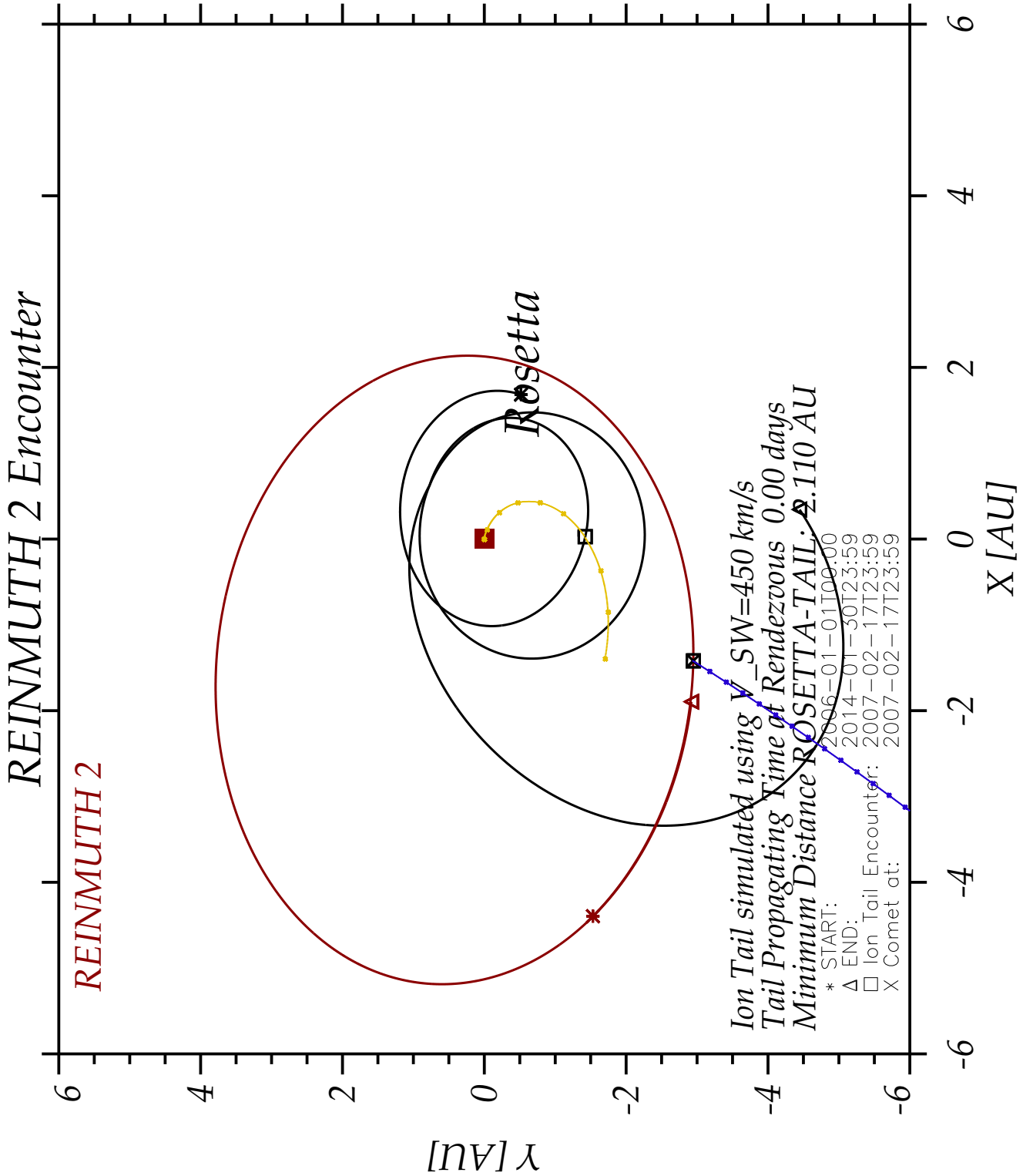


Figure 88: Overview: ROSETTA - REINMUTH 2

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## 47 Comet 45P/HONDA-MRKOS-PAJDUSAKOVA

<b>Comet:</b>	<b>45P/HONDA-MRKOS-PAJDUSAKOVA</b>				
<b>Date of Encounter:</b>	<b>2006-07-06T19:30</b>				
<b>Minimum Distance</b>					
<b>ROSETTA/Ion Tail:</b>	<b>0.0620</b>				<b>AU</b>
<b>Position of ROSETTA</b>	<b>0.4418</b>	<b>1.1817</b>	<b>0.0310</b>	<b>1.2620</b>	<b>AU,[x,y,z],r</b>
<b>Position of COMET:</b>	<b>0.1073</b>	<b>0.5426</b>	<b>-0.0074</b>	<b>0.5532</b>	<b>AU,[x,y,z],r</b>
<b>Velocity of ROSETTA</b>	<b>-27.56</b>	<b>2.44</b>	<b>-0.13</b>	<b>27.67</b>	<b>km/s,[vx,vy,vz],v</b>
<b>Velocity of COMET:</b>	<b>-50.07</b>	<b>20.13</b>	<b>3.75</b>	<b>54.10</b>	<b>km/s,[vx,vy,vz],v</b>
<b>Tail Intersection Angle:</b>	<b>121.1</b>				<b>deg</b>
<b>Velocity of ROSETTA</b>					
<b>normal to Tail:</b>	<b>23.70</b>				<b>km/s</b>
<b>Progagting Time</b>					
<b>of Tail</b>	<b>2.790</b>				<b>days</b>

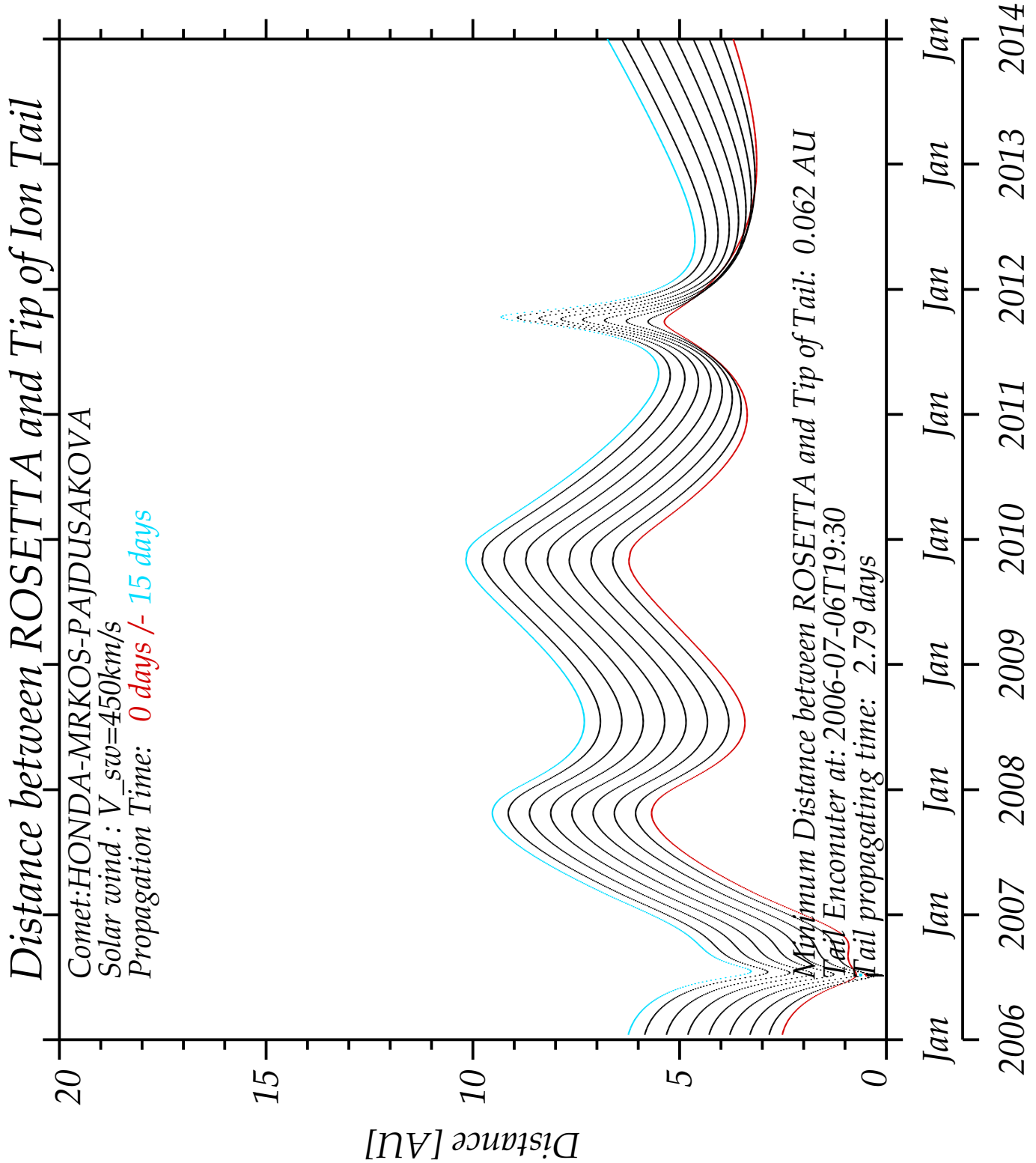


Figure 89: Minimum Distances: ROSETTA - HONDA-MRKOS-PAJDUSAKOVA



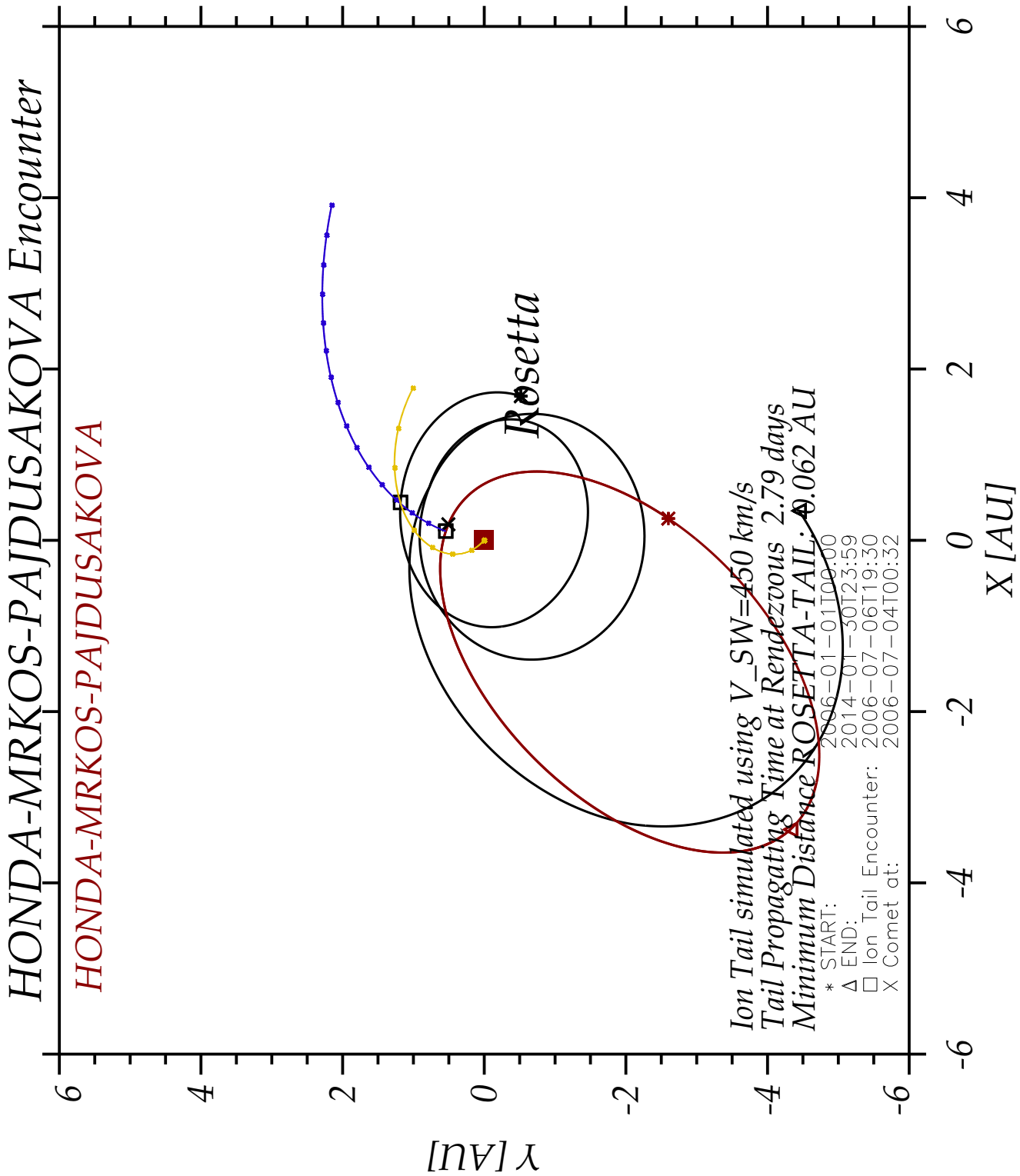


Figure 90: Overview: ROSETTA - HONDA-MRKOS-PAJDUSAKOVA

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## 48 Comet 46P/WIRTANEN

<b>Comet: 46P/WIRTANEN</b>
<b>No Encounter below 0.2000AU</b>

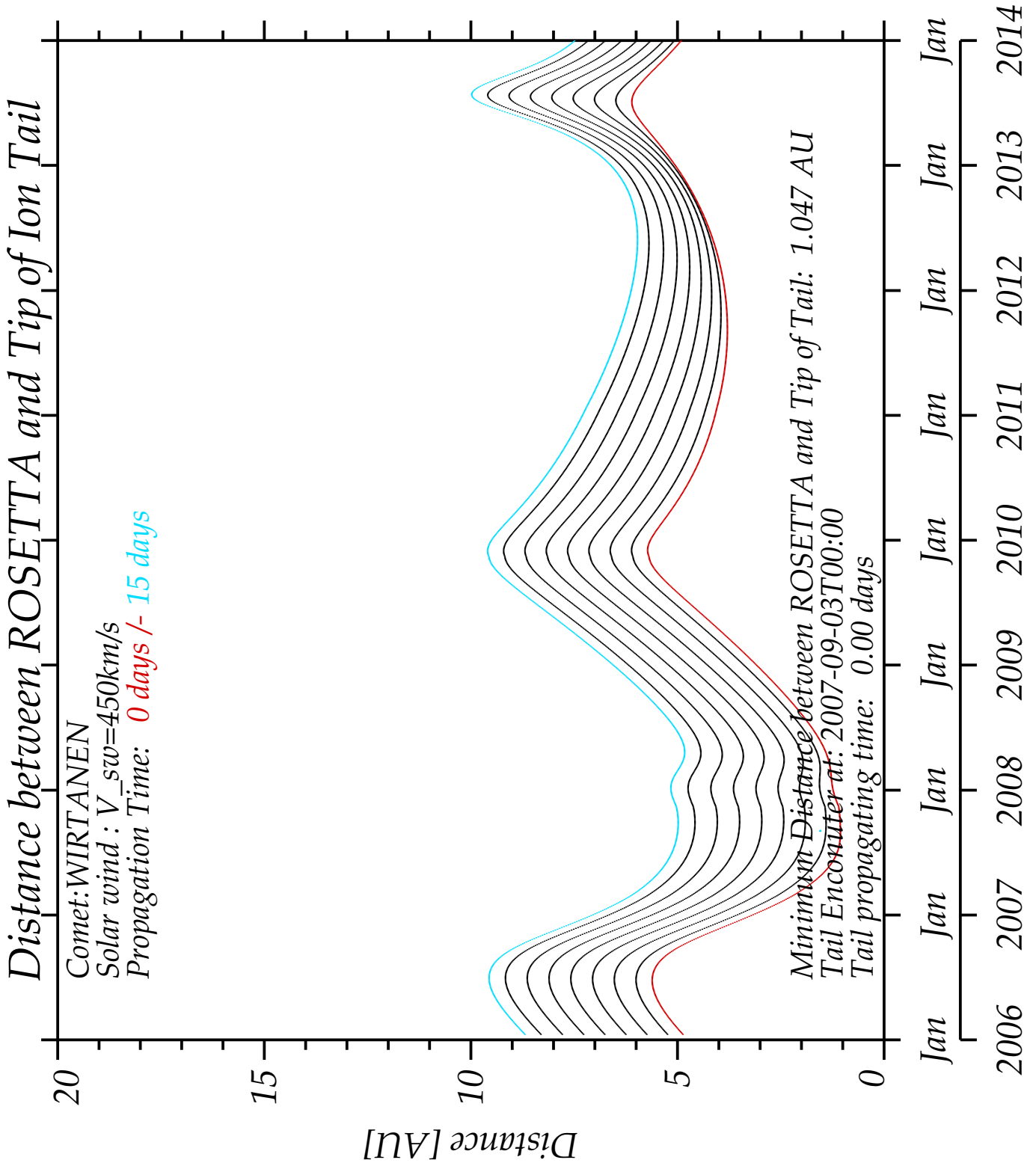


Figure 91: Minimum Distances: ROSETTA - WIRTANEN

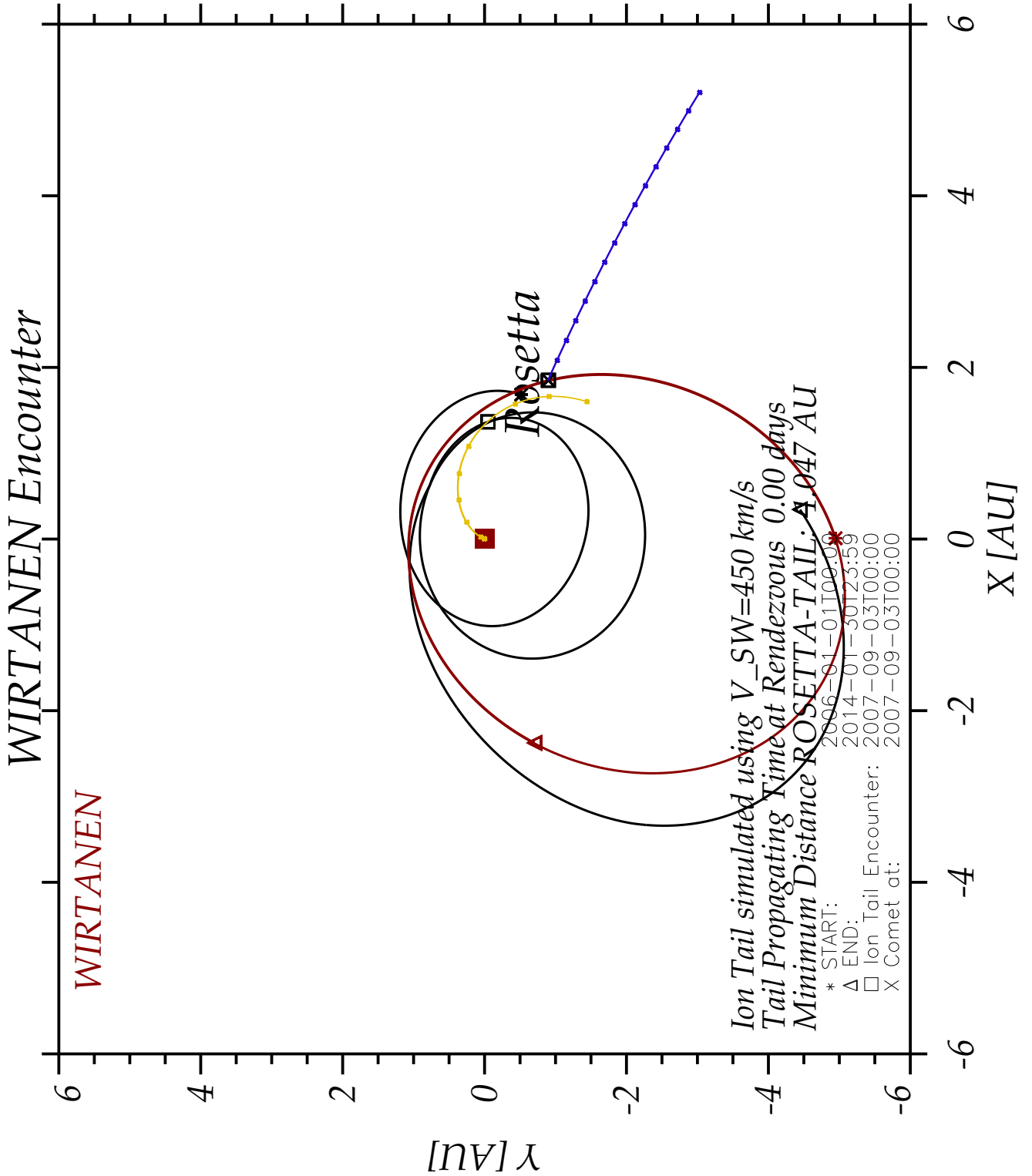


Figure 92: Overview: ROSETTA - WIRTANEN

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## 49 Comet 47P/ASHBROOK-JACKSON

<b>Comet: 47P/ASHBROOK-JACKSON</b>
<b>No Encounter below 0.2000AU</b>

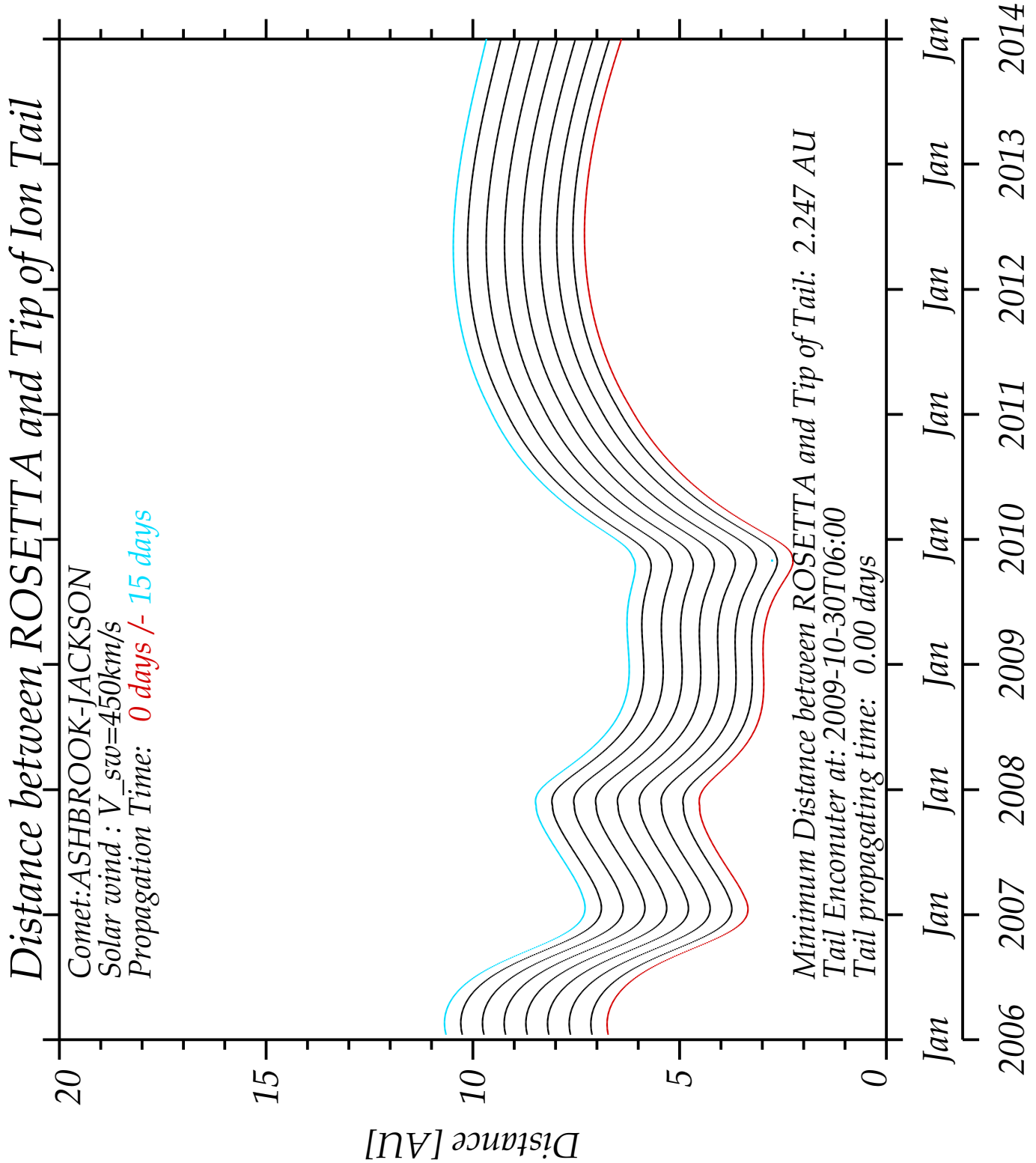


Figure 93: Minimum Distances: ROSETTA - ASHBROOK-JACKSON

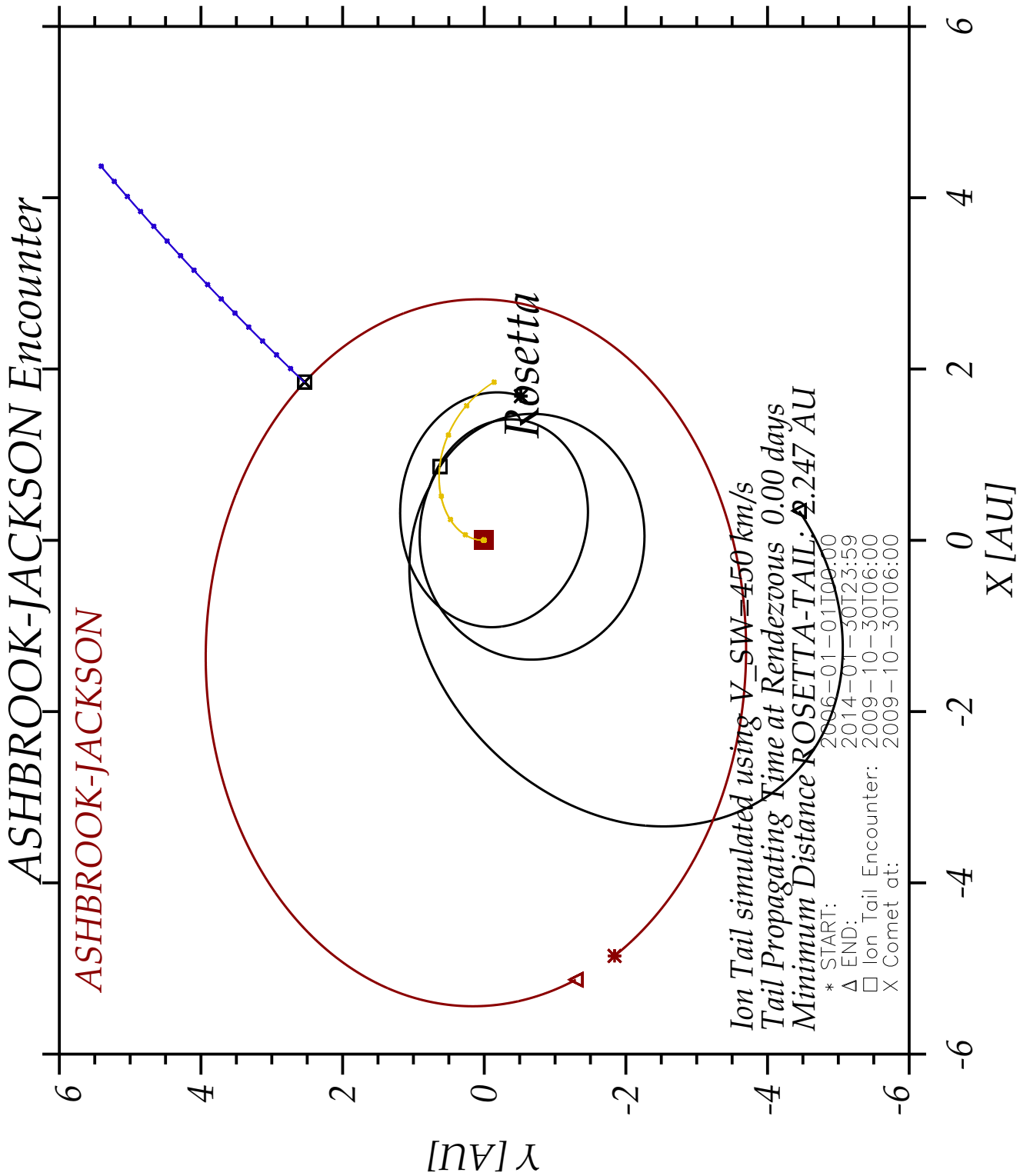


Figure 94: Overview: ROSETTA - ASHBROOK-JACKSON

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## **50 Comet 48P/JOHNSON**

<b>Comet: 48P/JOHNSON</b>
<b>No Encounter below 0.2000AU</b>



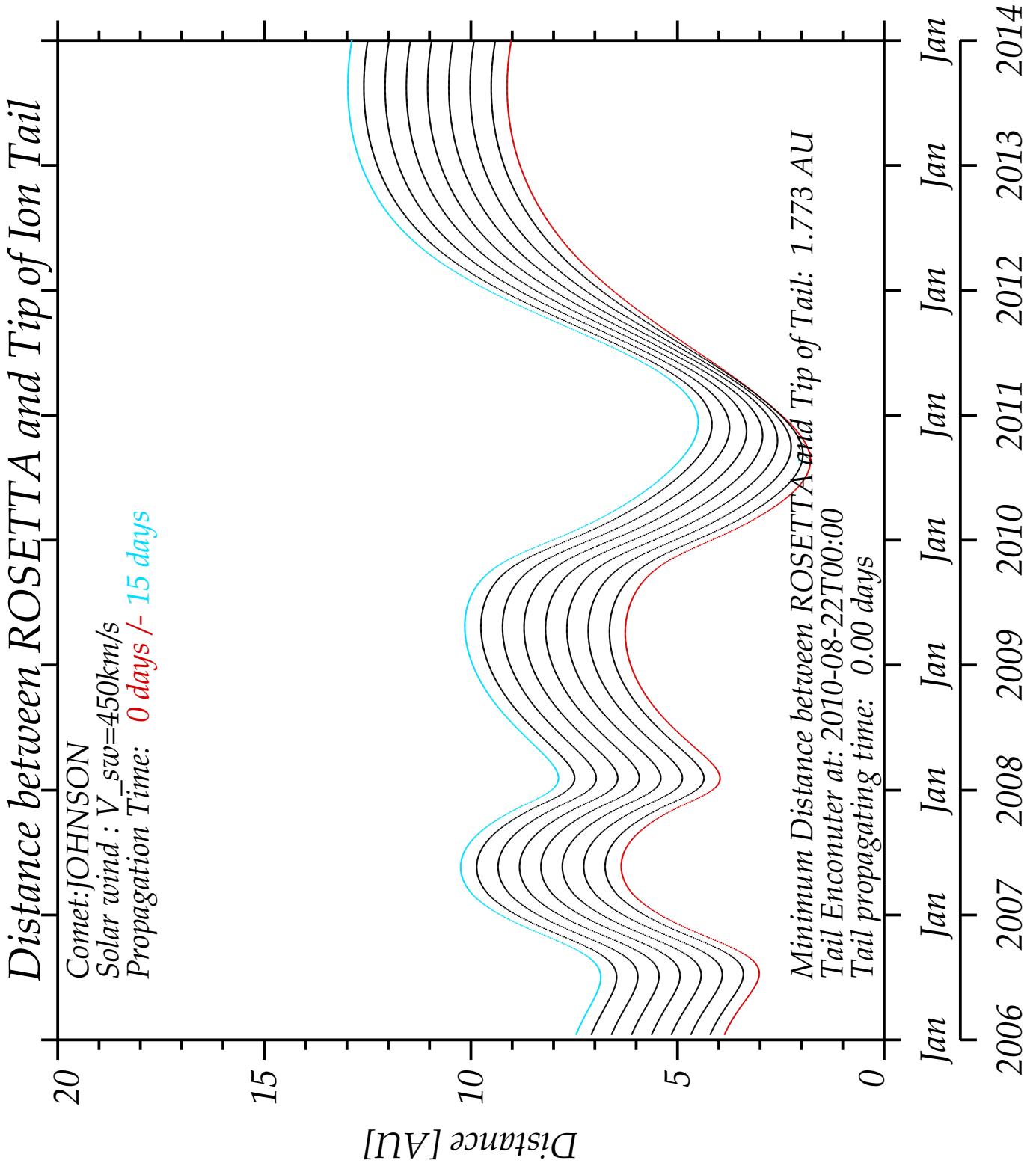


Figure 95: Minimum Distances: ROSETTA - JOHNSON

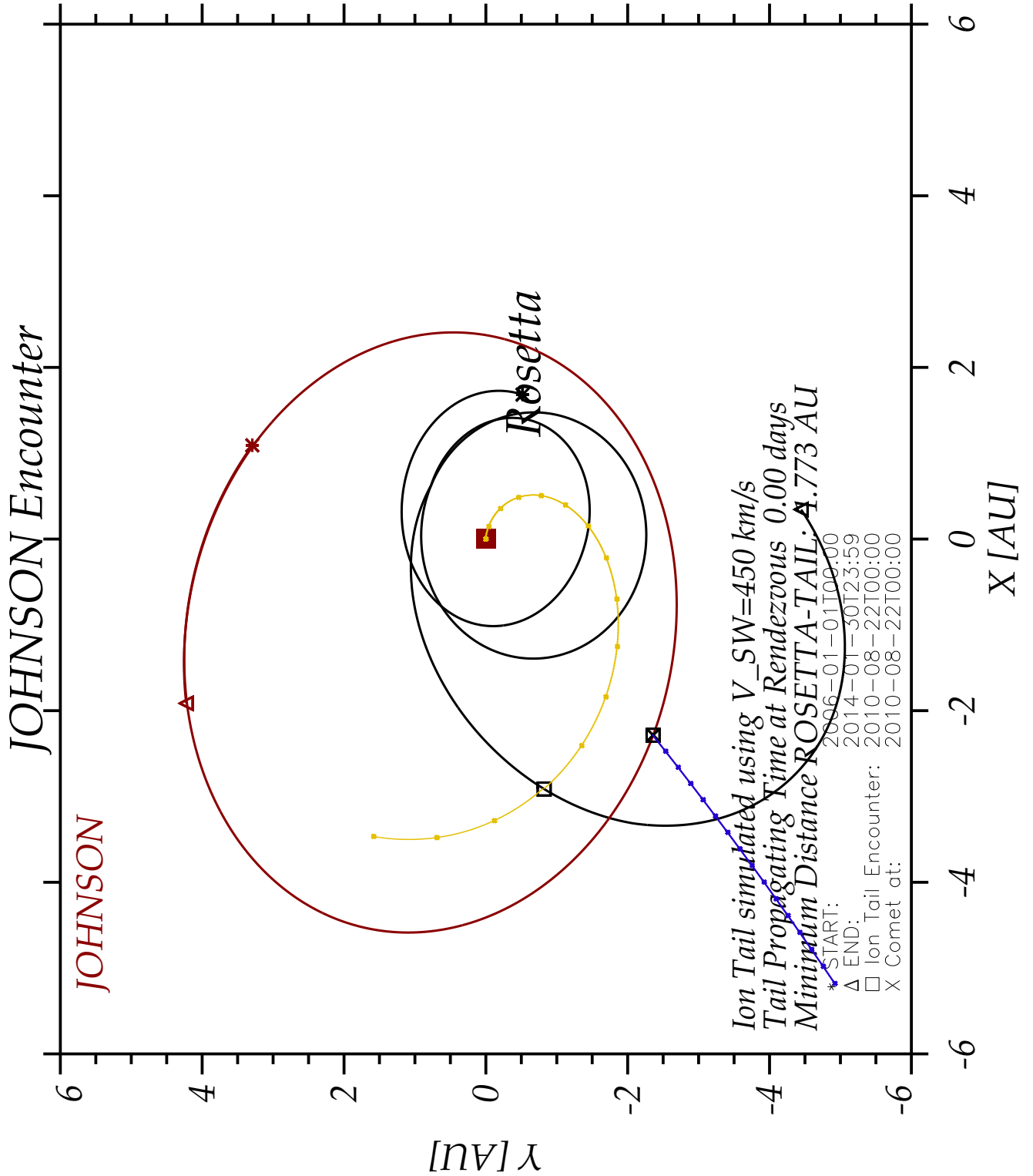


Figure 96: Overview: ROSETTA - JOHNSON

<p style="text-align: center;">R O S E T T A</p>	<p>Document: RO-IGEP-TR-0020  Issue: 1  Revision: 2  Date: 2006-10-25  Page: 146</p>
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## 51 Comet 49P/AREND-RIGAUX

<p><b>Comet: 49P/AREND-RIGAUX</b></p>
<p><b>No Encounter below 0.2000AU</b></p>

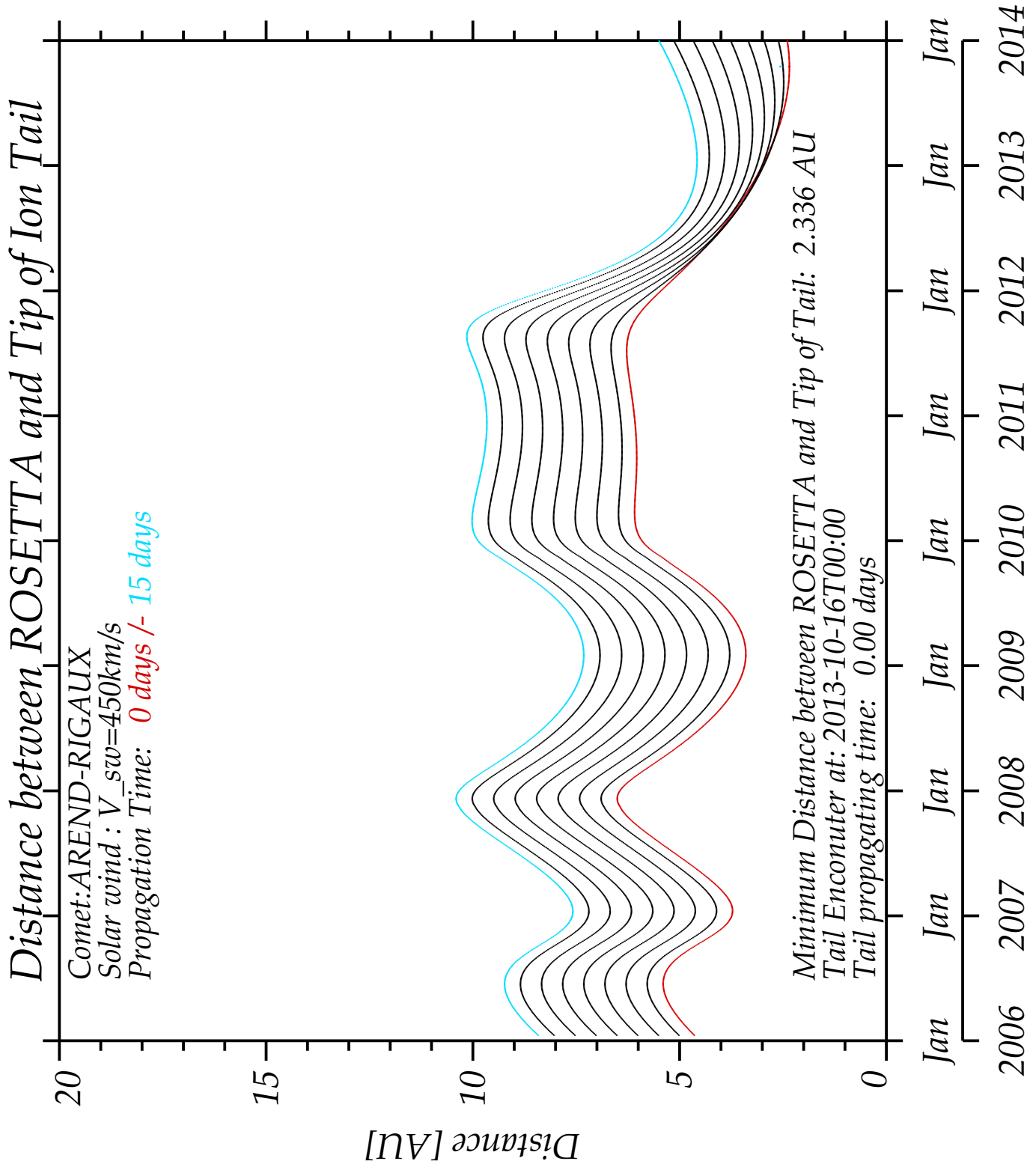


Figure 97: Minimum Distances: ROSETTA - AREND-RIGAUX

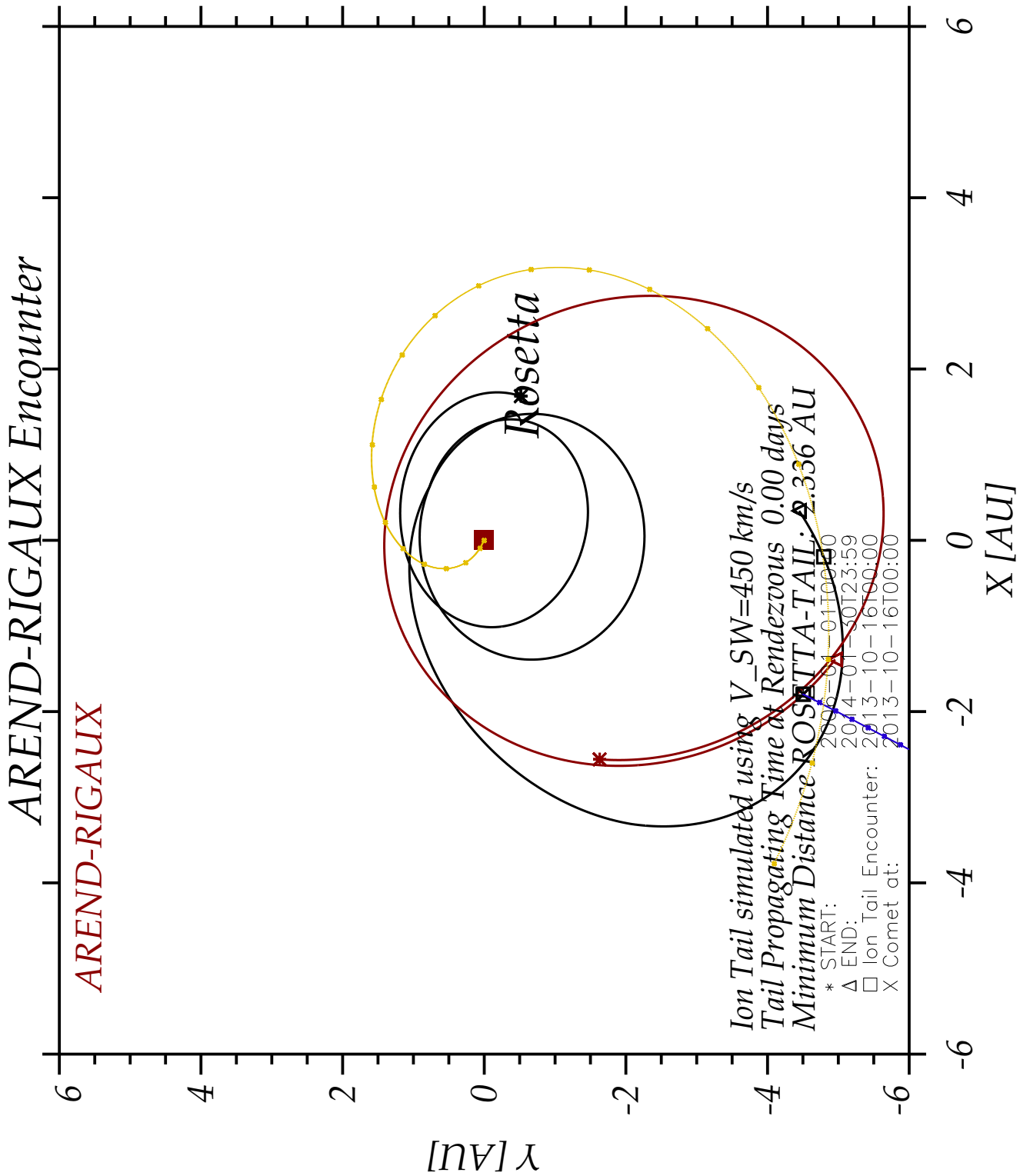


Figure 98: Overview: ROSETTA - AREND-RIGAUX

<p style="text-align: center;">R O S E T T A</p>	<p>Document: RO-IGEP-TR-0020  Issue: 1  Revision: 2</p>
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## 52 Comet 50P/AREND

<p><b>Comet: 50P/AREND</b></p>
<p><b>No Encounter below 0.2000AU</b></p>

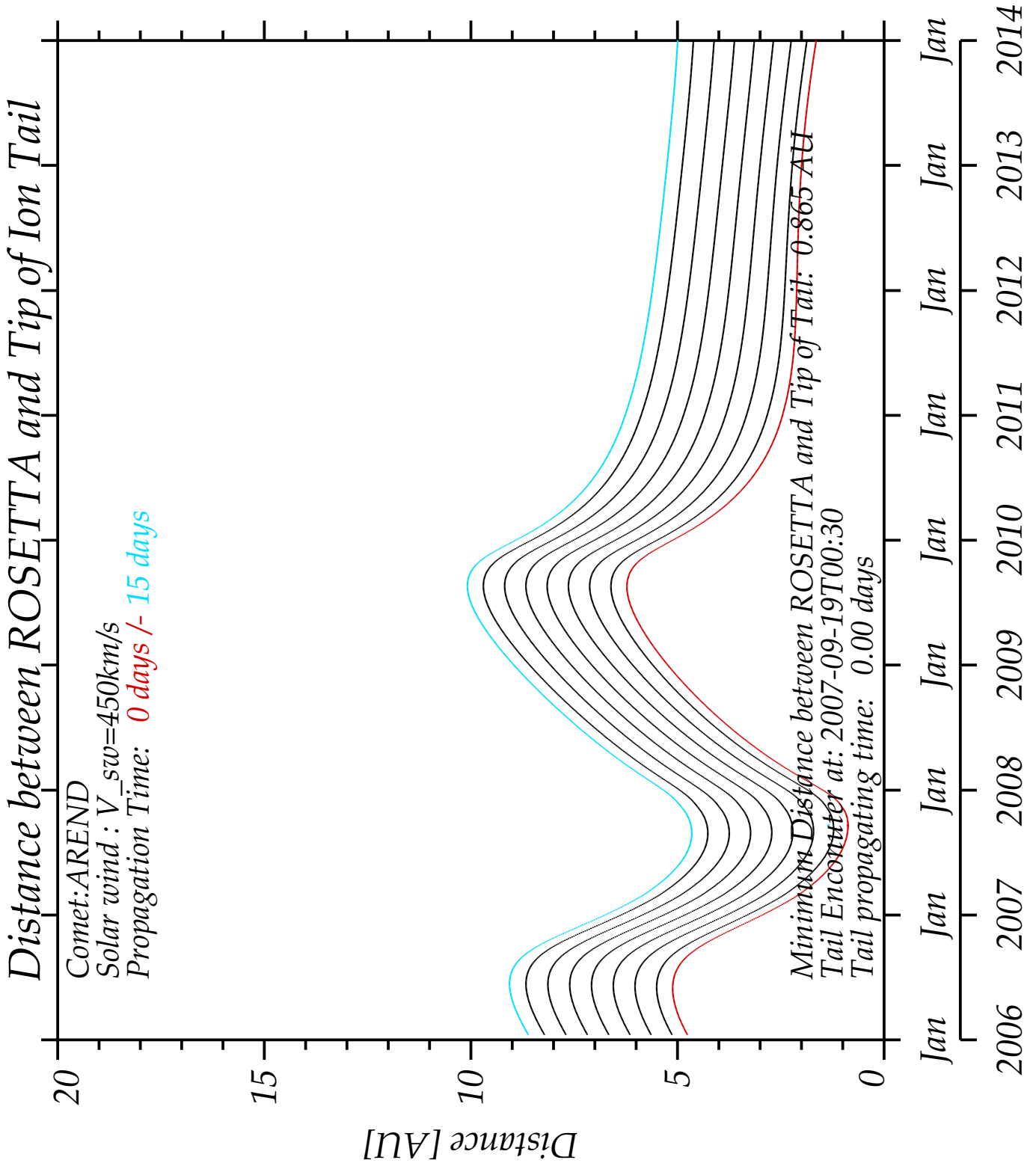


Figure 99: Minimum Distances: ROSETTA - AREND

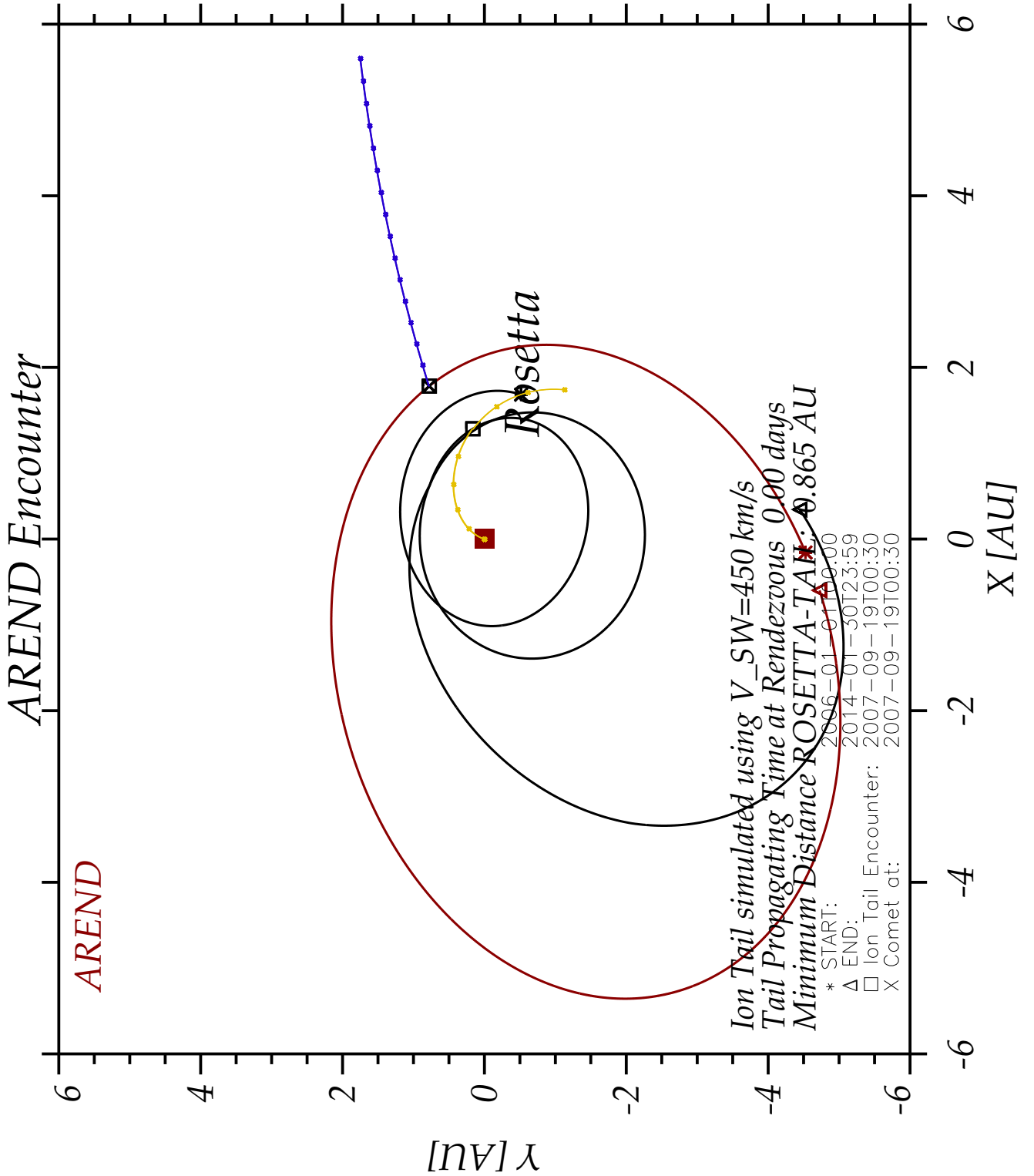


Figure 100: Overview: ROSETTA - AREND



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### 53 Comet 51P/HARRINGTON

<b>Comet: 51P/HARRINGTON</b>
<b>No Encounter below 0.2000AU</b>

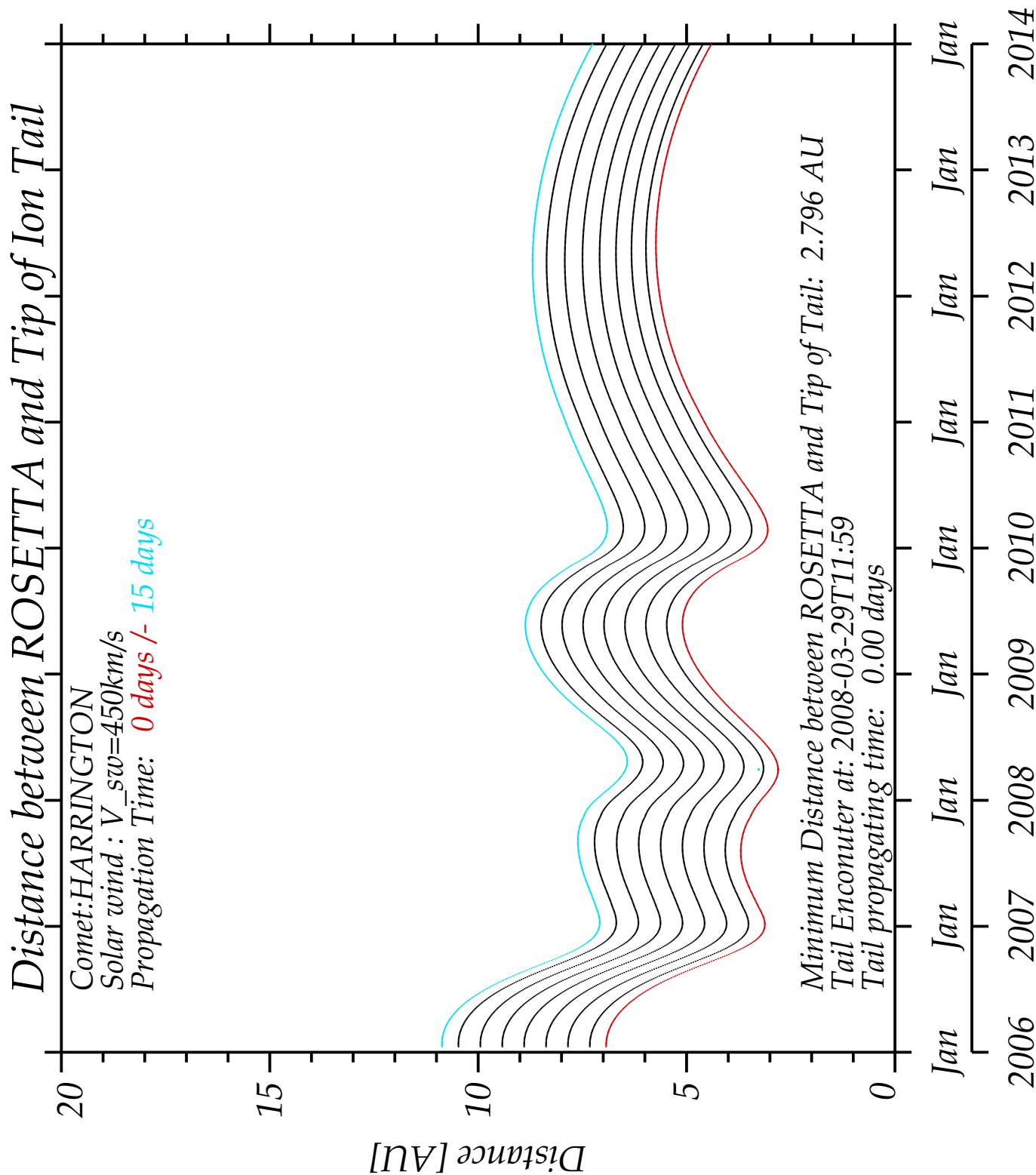


Figure 101: Minimum Distances: ROSETTA - HARRINGTON

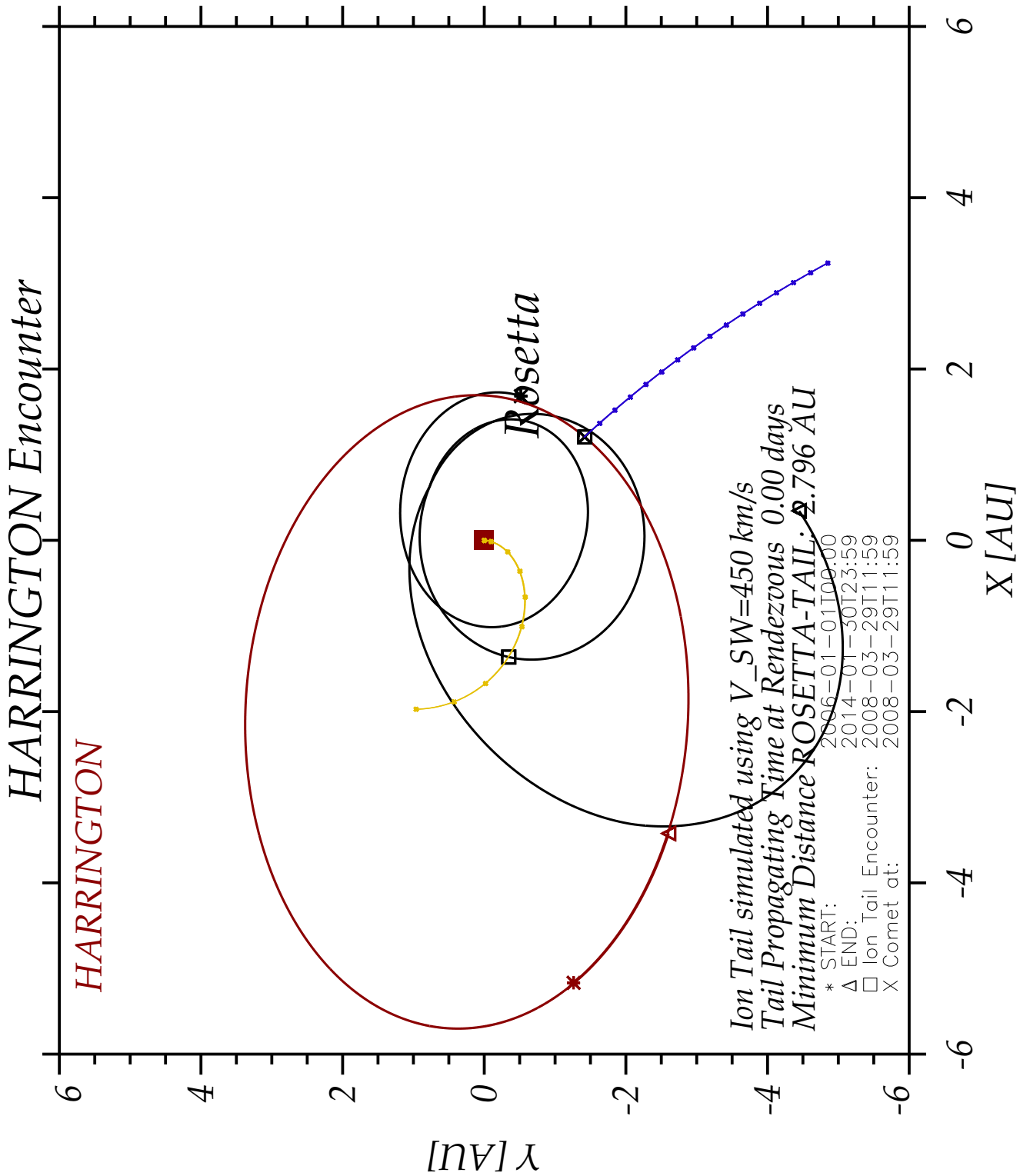


Figure 102: Overview: ROSETTA - HARRINGTON

<p style="text-align: center;">R O S E T T A</p>	<p>Document: RO-IGEP-TR-0020 Issue: 1 Revision: 2</p>
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## 54 Comet 51P-A/HARRINGTON-A

<p><b>Comet: 51P-A/HARRINGTON-A</b></p>
<p><b>No Encounter below 0.2000AU</b></p>

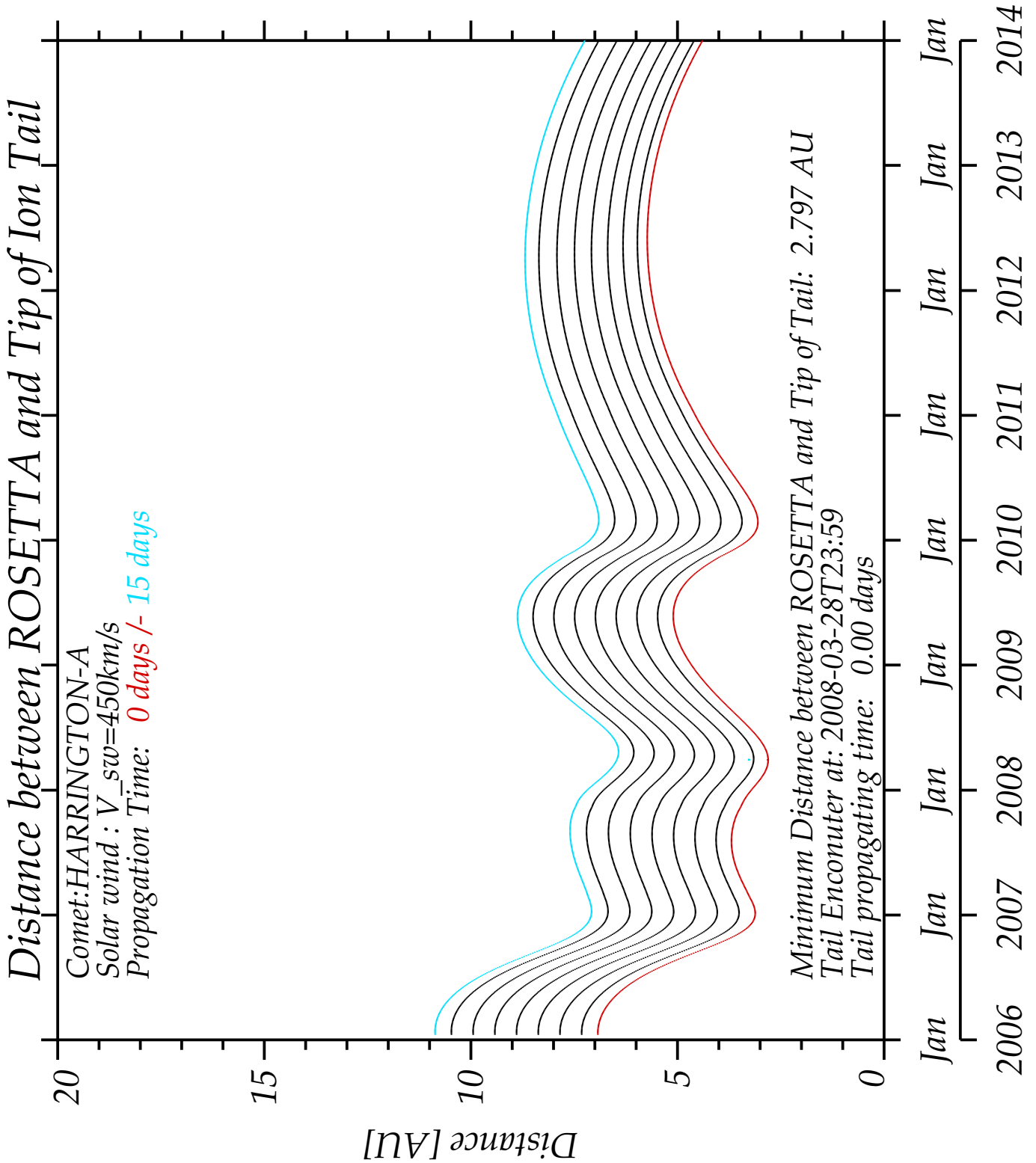


Figure 103: Minimum Distances: ROSETTA - HARRINGTON-A

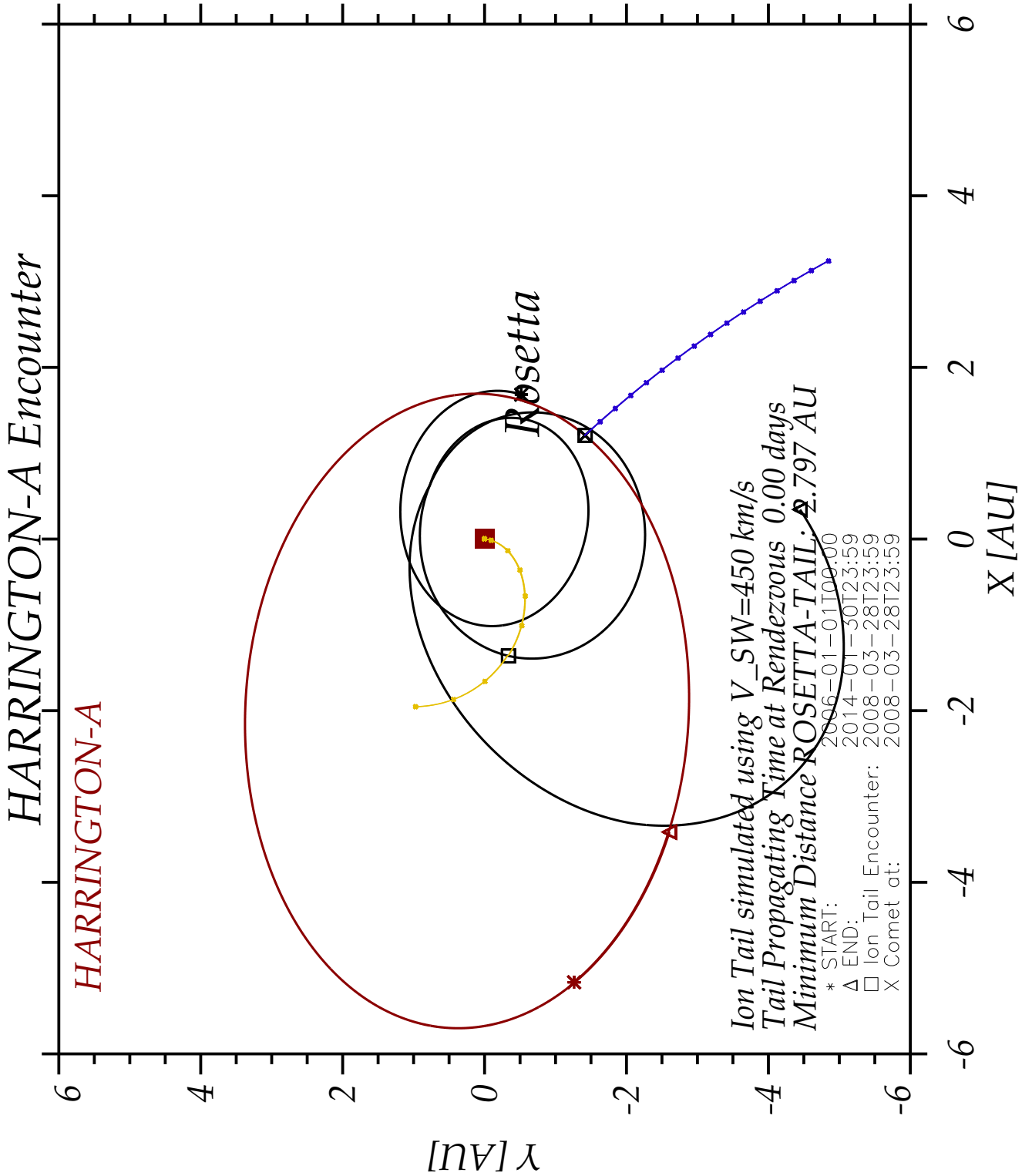


Figure 104: Overview: ROSETTA - HARRINGTON-A

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## 55 Comet 52P/HARRINGTON-ABELL

<b>Comet: 52P/HARRINGTON-ABELL</b>
<b>No Encounter below 0.2000AU</b>

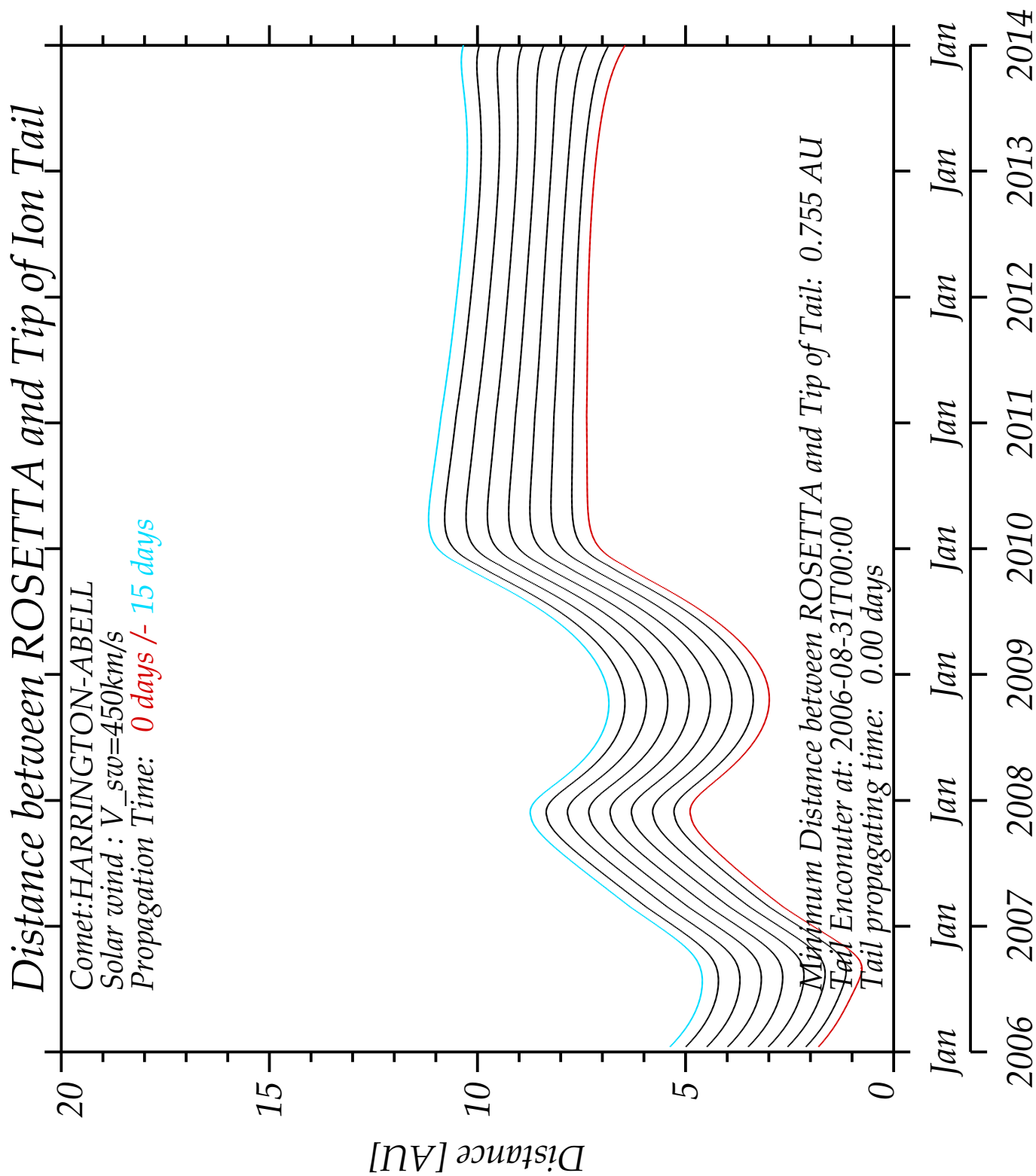


Figure 105: Minimum Distances: ROSETTA - HARRINGTON-ABELL



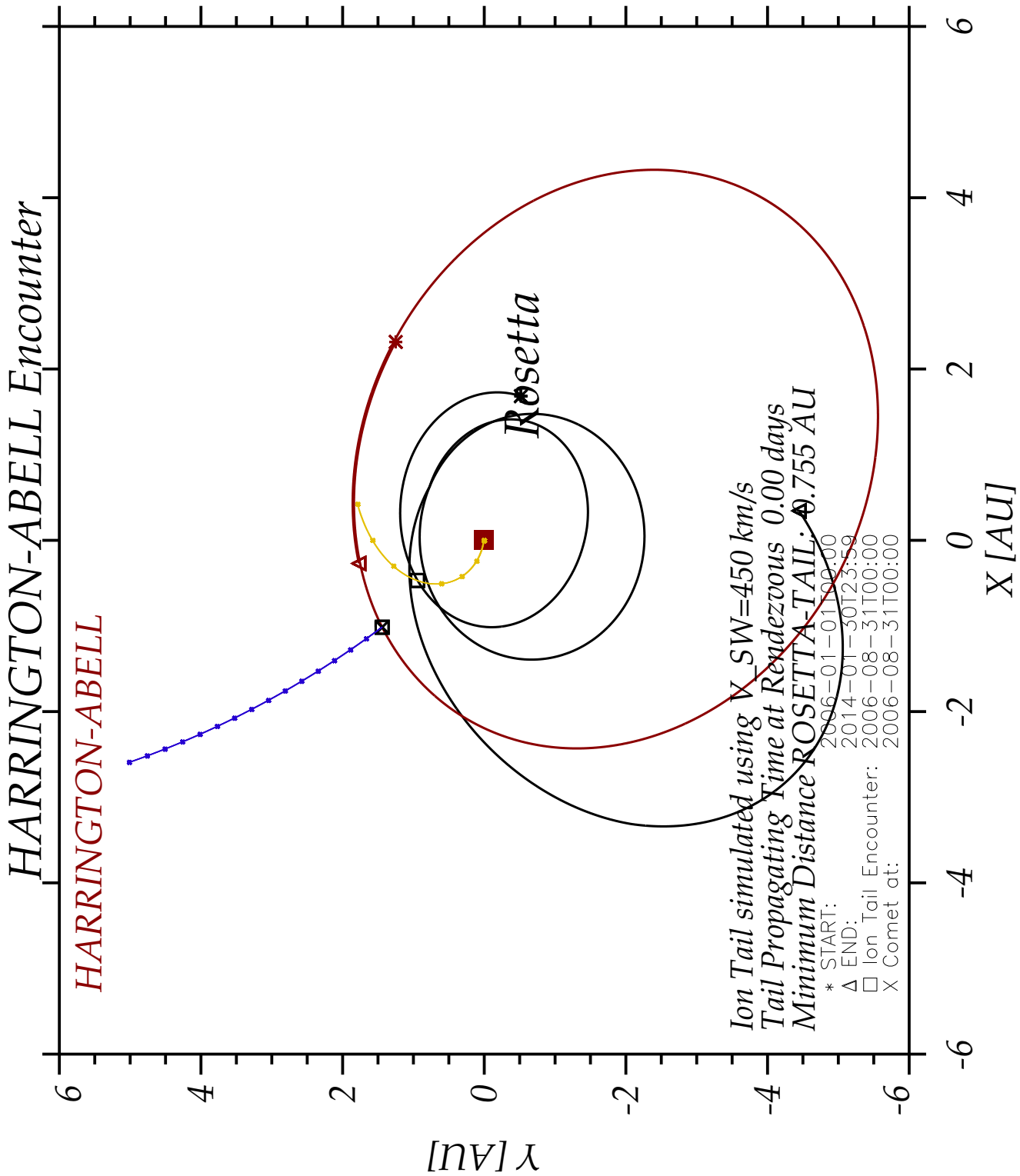


Figure 106: Overview: ROSETTA - HARRINGTON-ABELL

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## 56 Comet 53P/VAN BIESBROECK

<b>Comet: 53P/VAN BIESBROECK</b>
<b>No Encounter below 0.2000AU</b>

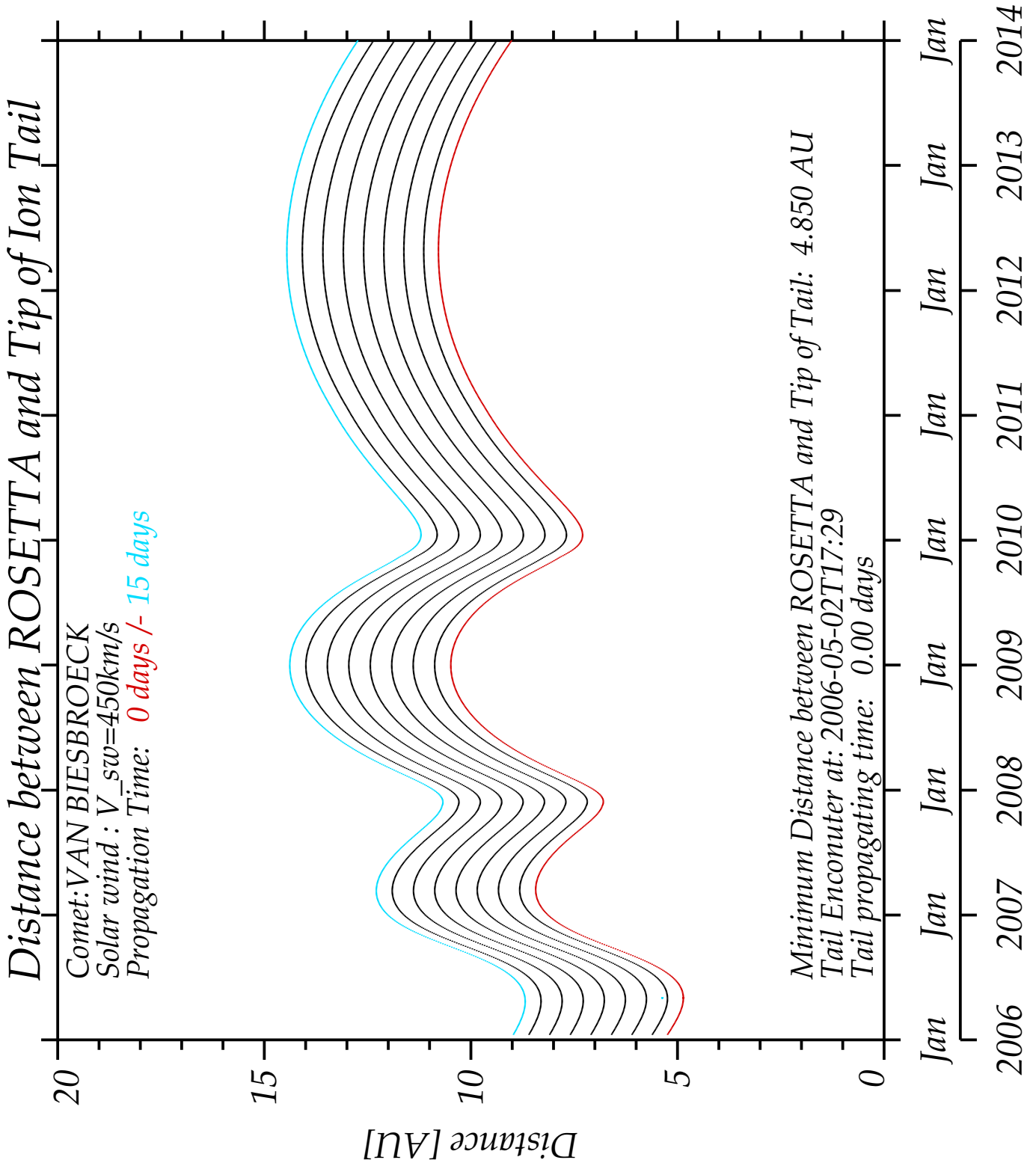


Figure 107: Minimum Distances: ROSETTA - VAN BIESBROECK

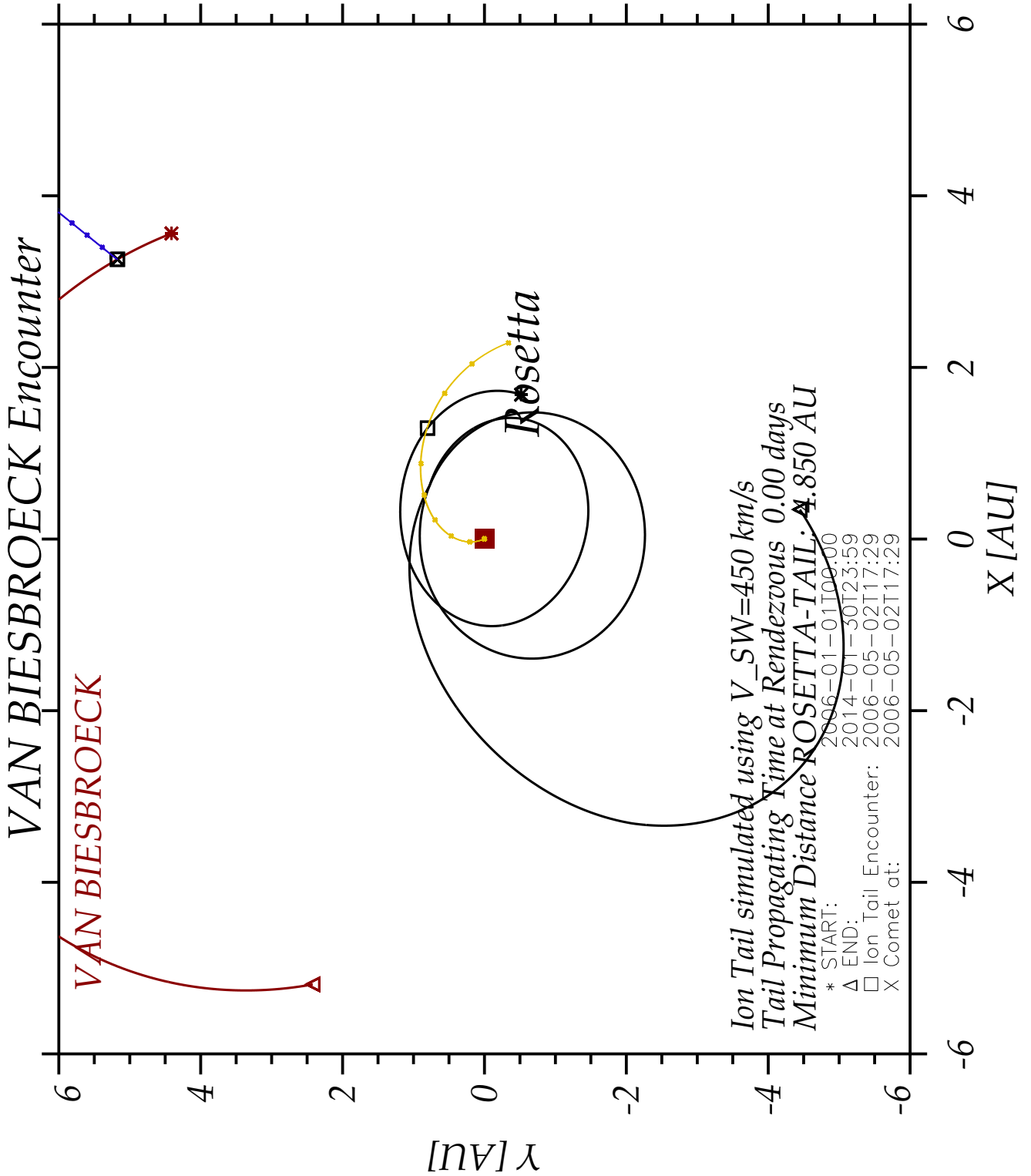


Figure 108: Overview: ROSETTA - VAN BIESBROECK

<p style="text-align: center;">R O S E T T A</p>	<p>Document: RO-IGEP-TR-0020  Issue: 1  Revision: 2  Date: 2006-10-25  Page: 164</p>
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## 57 Comet 54P/DE VICO-SWIFT

<p><b>Comet: 54P/DE VICO-SWIFT</b></p>
<p><b>No Encounter below 0.2000AU</b></p>

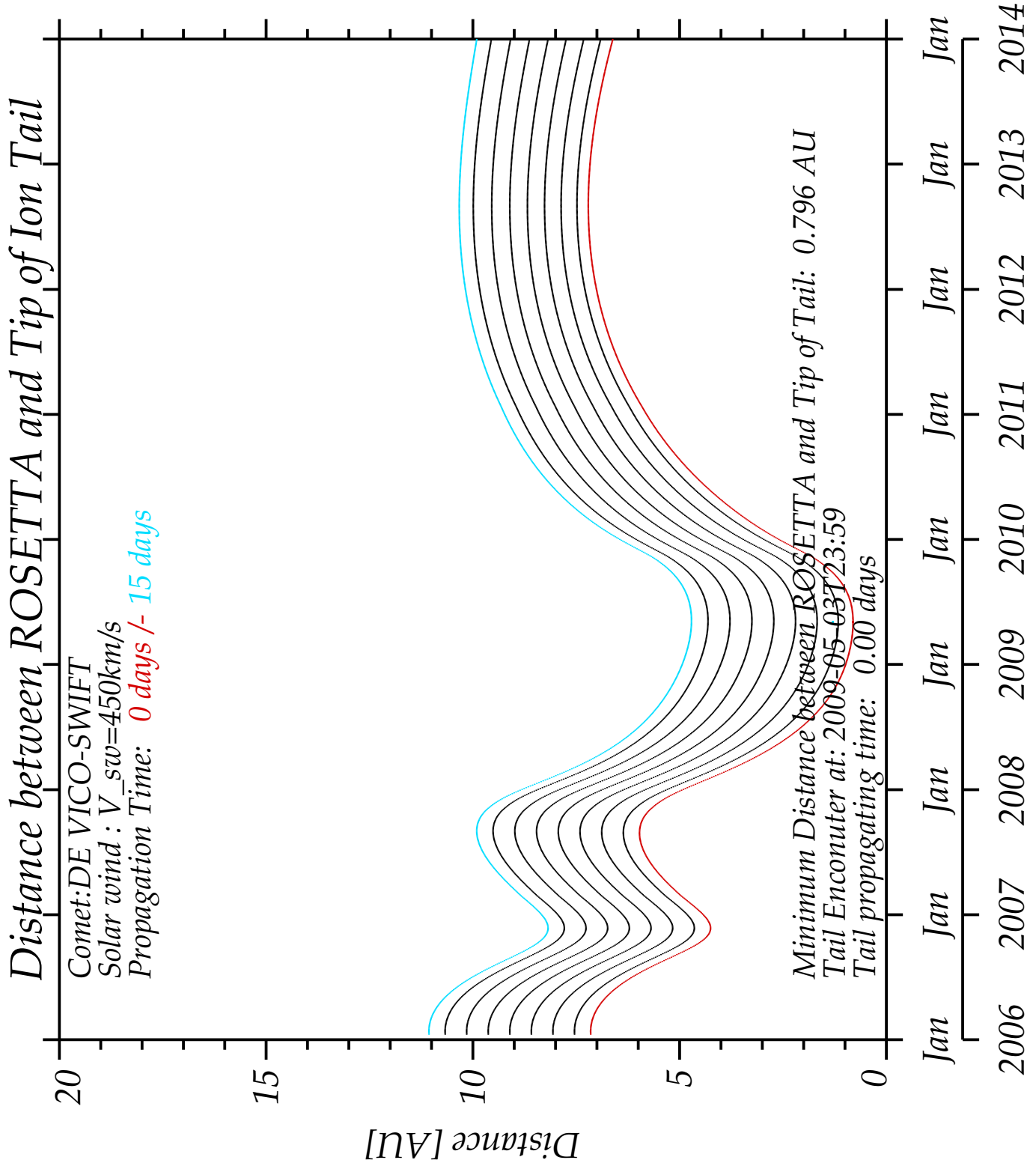


Figure 109: Minimum Distances: ROSETTA - DE VICO-SWIFT

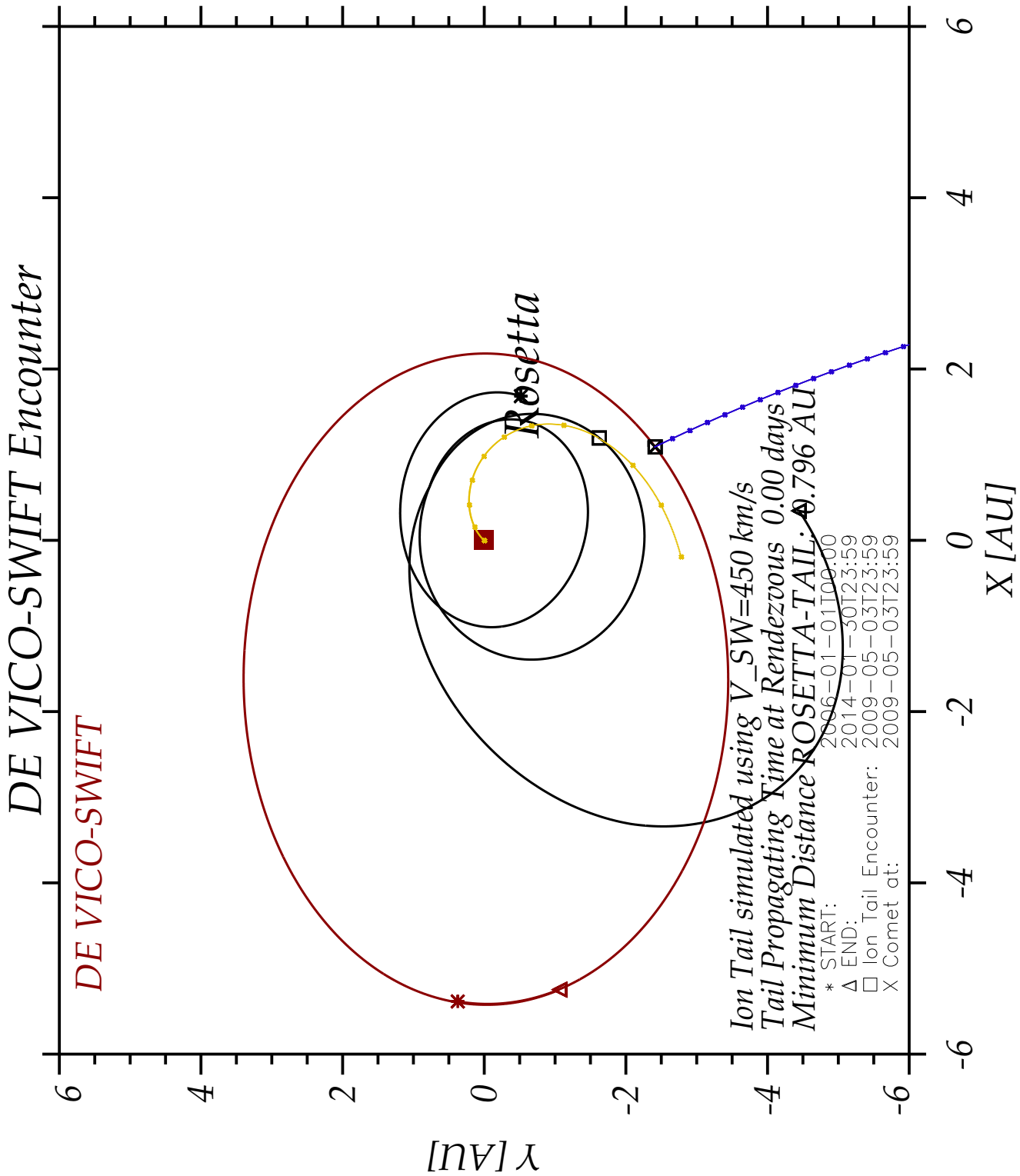


Figure 110: Overview: ROSETTA - DE VICO-SWIFT

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## **58 Comet 55P/TEMPEL-TUTTLE**

<b>Comet: 55P/TEMPEL-TUTTLE</b>
<b>No Encounter below 0.2000AU</b>



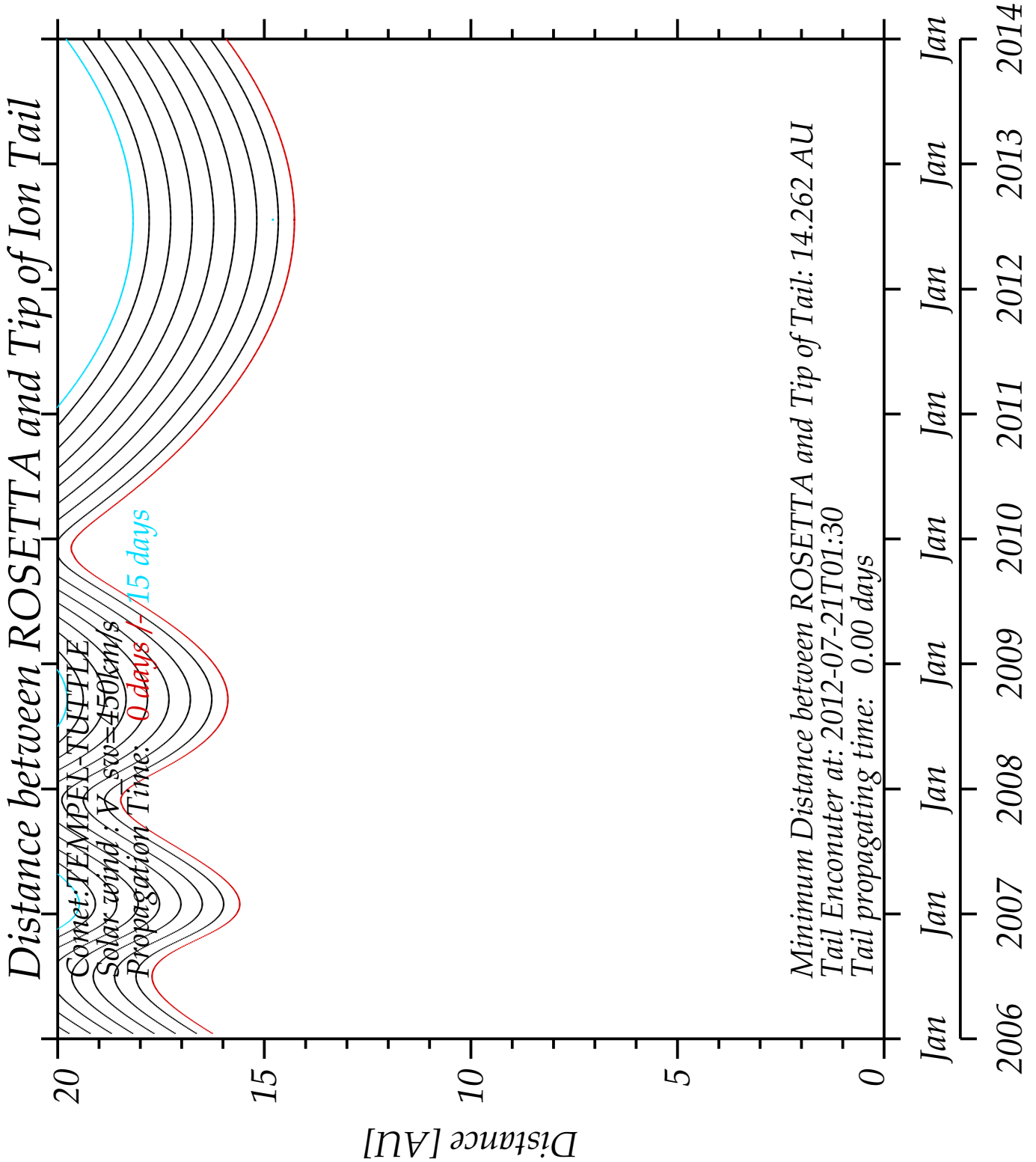


Figure 111: Minimum Distances: ROSETTA - TEMPEL-TUTTLE

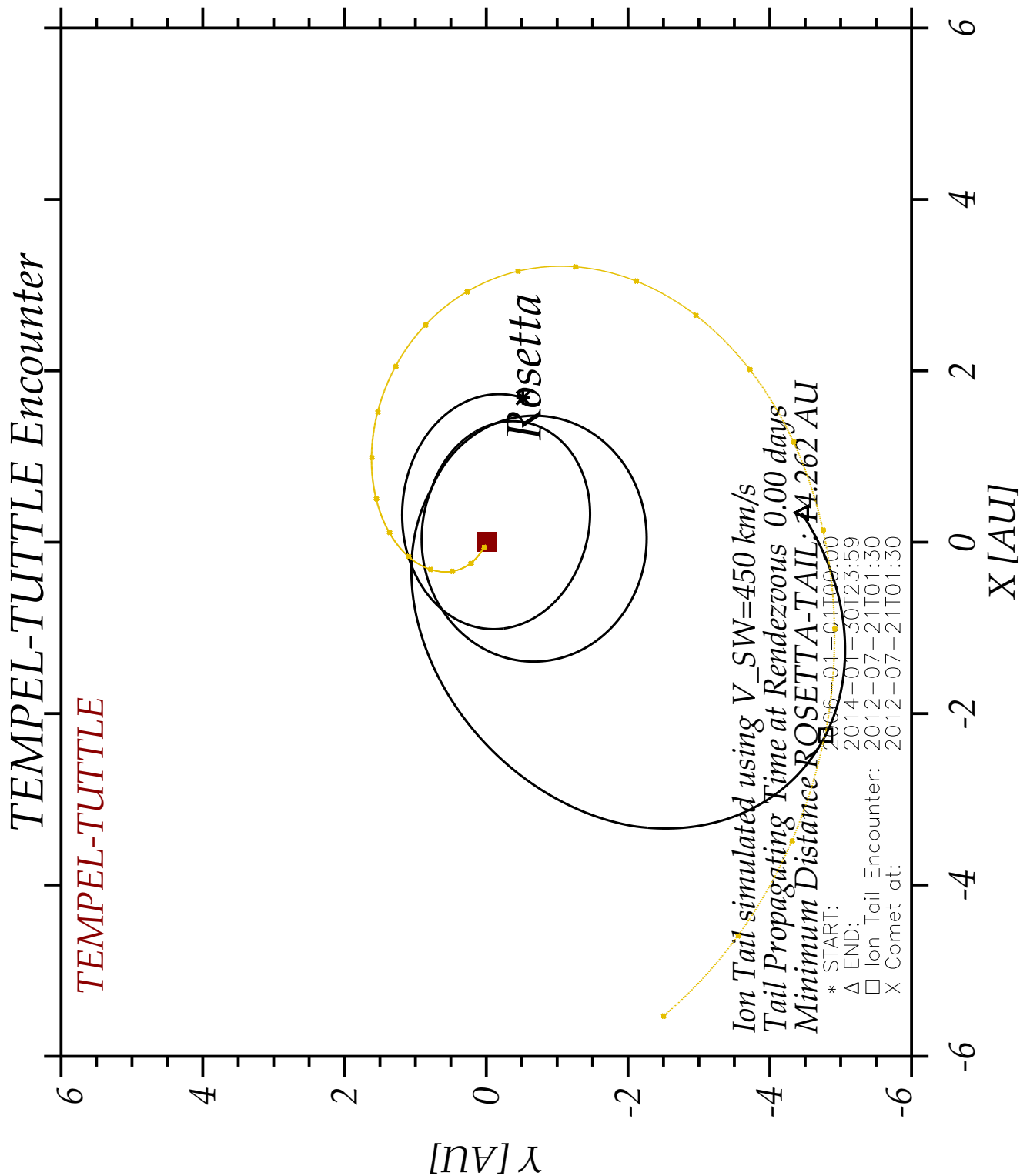


Figure 112: Overview: ROSETTA - TEMPEL-TUTTLE

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## 59 Comet 56P/SLAUGHTER-BURNHAM

<b>Comet: 56P/SLAUGHTER-BURNHAM</b>
<b>No Encounter below 0.2000AU</b>

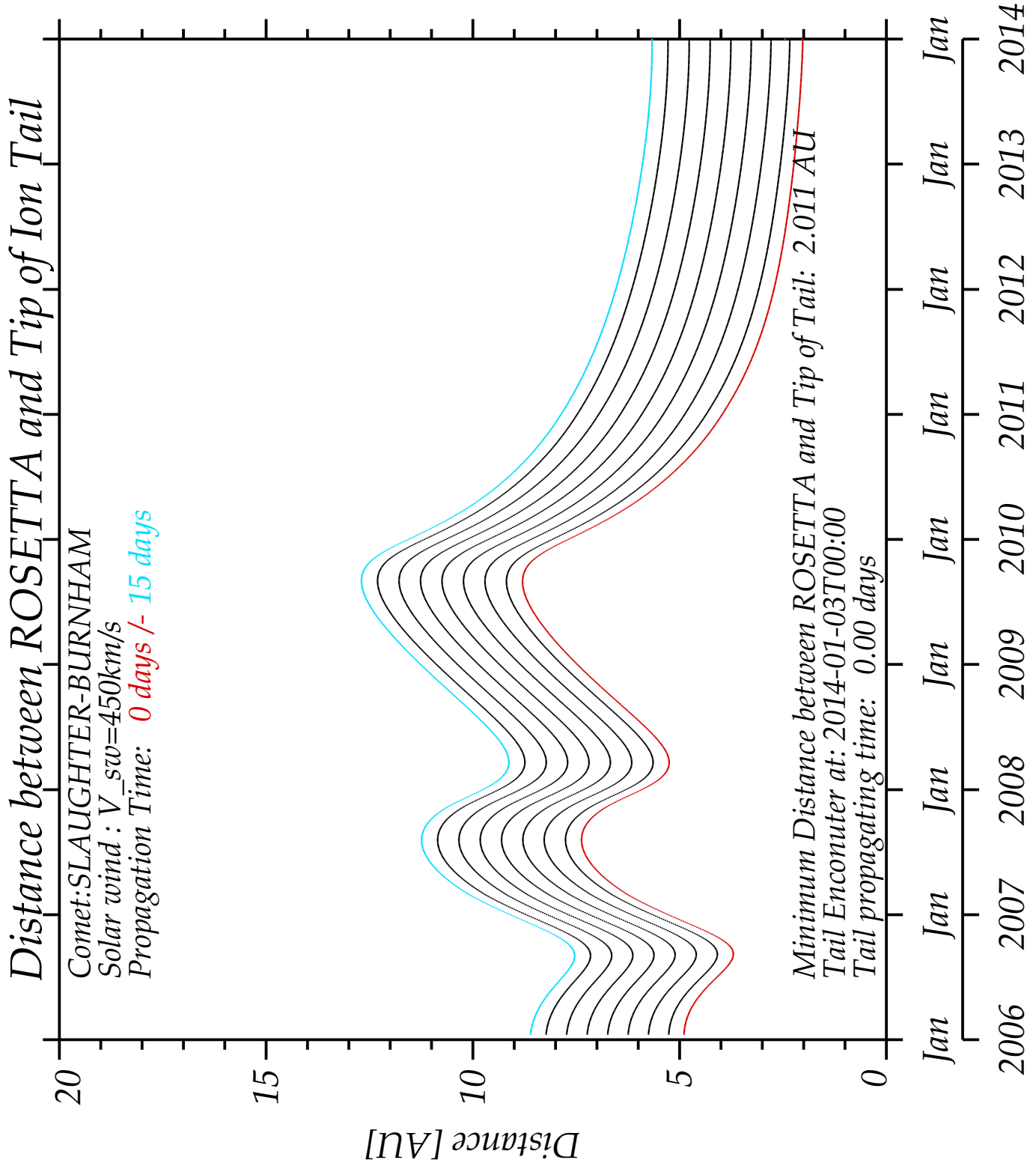


Figure 113: Minimum Distances: ROSETTA - SLAUGHTER-BURNHAM

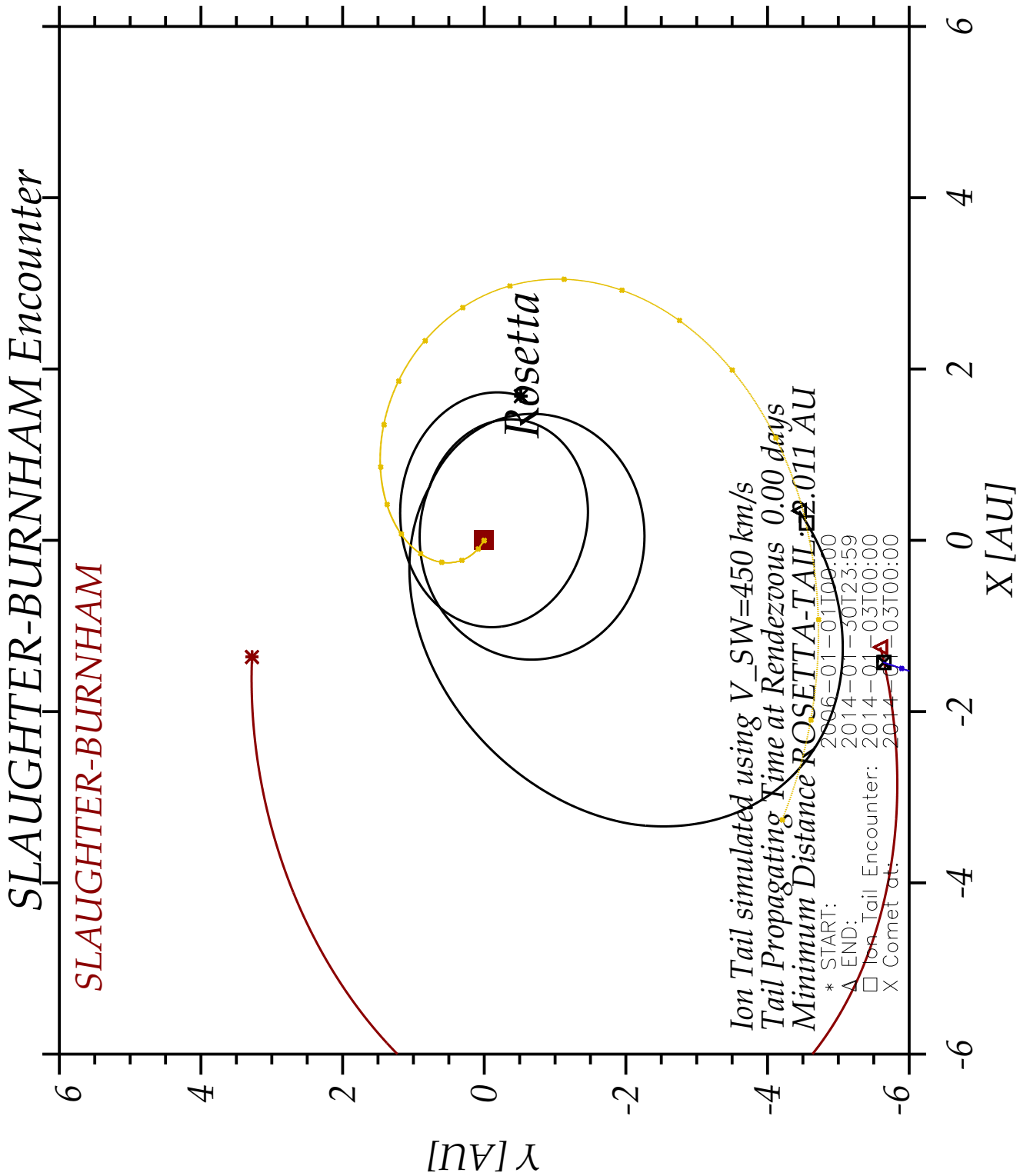


Figure 114: Overview: ROSETTA - SLAUGHTER-BURNHAM

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## 60 Comet 57P/DUTOIT-NEUJMIN-DELPORTE

<b>Comet:</b>	<b>57P/DUTOIT-NEUJMIN-DELPORTE</b>				
<b>Date of Encounter:</b>	<b>2008-08-20T06:30</b>				
<b>Minimum Distance</b>					
<b>ROSETTA/Ion Tail:</b>	<b>0.1790</b>				<b>AU</b>
<b>Position of ROSETTA</b>	<b>-0.8438</b>	<b>-1.9202</b>	<b>-0.0749</b>	<b>2.0988</b>	<b>AU,[x,y,z],r</b>
<b>Position of COMET:</b>	<b>-0.9047</b>	<b>-1.8671</b>	<b>0.0849</b>	<b>2.0765</b>	<b>AU,[x,y,z],r</b>
<b>Velocity of ROSETTA</b>	<b>12.72</b>	<b>-11.09</b>	<b>-2.28</b>	<b>17.03</b>	<b>km/s,[vx,vy,vz],v</b>
<b>Velocity of COMET:</b>	<b>24.34</b>	<b>-2.86</b>	<b>0.33</b>	<b>24.51</b>	<b>km/s,[vx,vy,vz],v</b>
<b>Tail Intersection Angle:</b>	<b>78.1</b>				<b>deg</b>
<b>Velocity of ROSETTA</b>					
<b>normal to Tail:</b>	<b>16.66</b>				<b>km/s</b>
<b>Progagting Time</b>					
<b>of Tail</b>	<b>0.040</b>				<b>days</b>

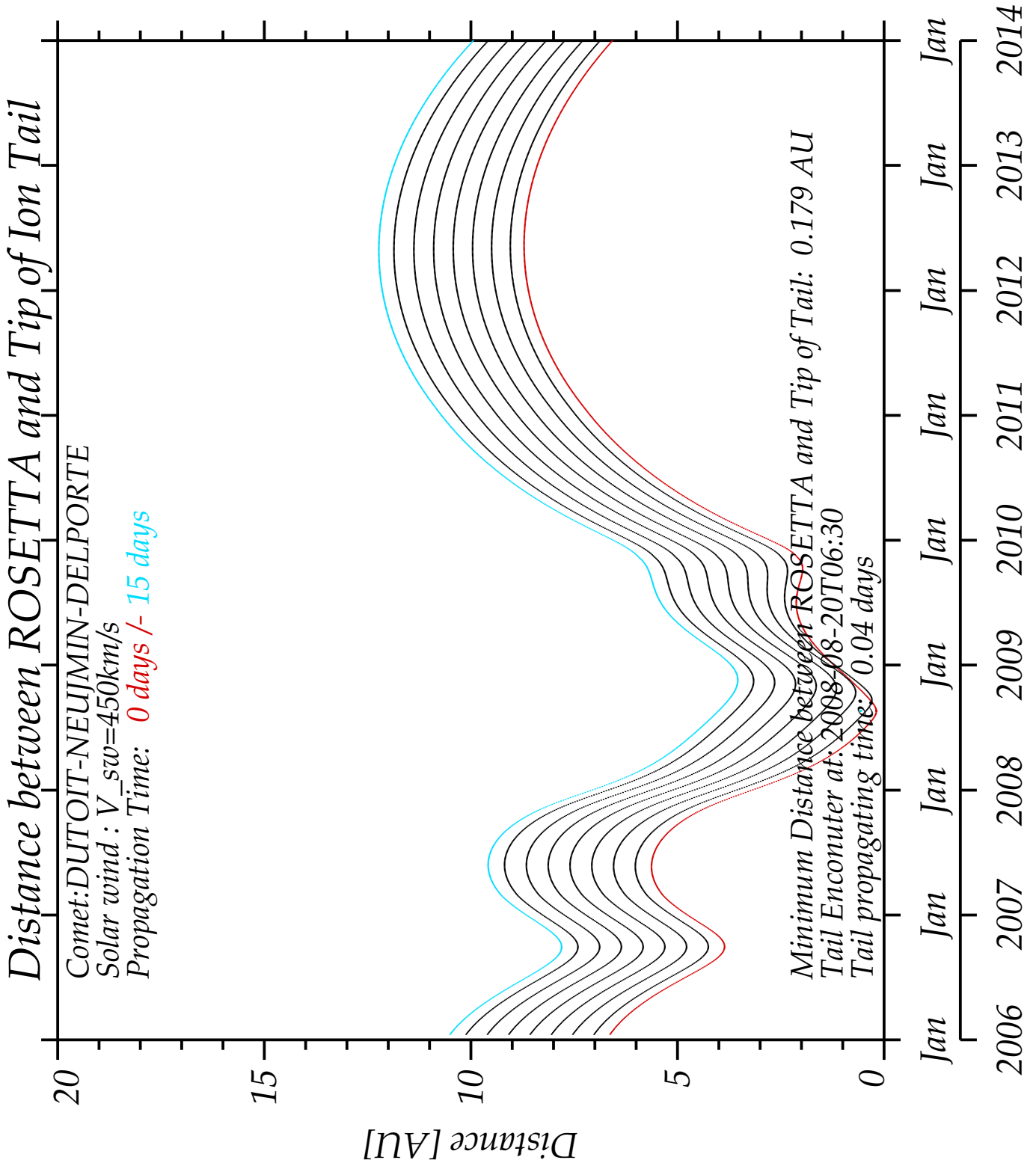


Figure 115: Minimum Distances: ROSETTA - DUTOIT-NEUJMIN-DELPORTE

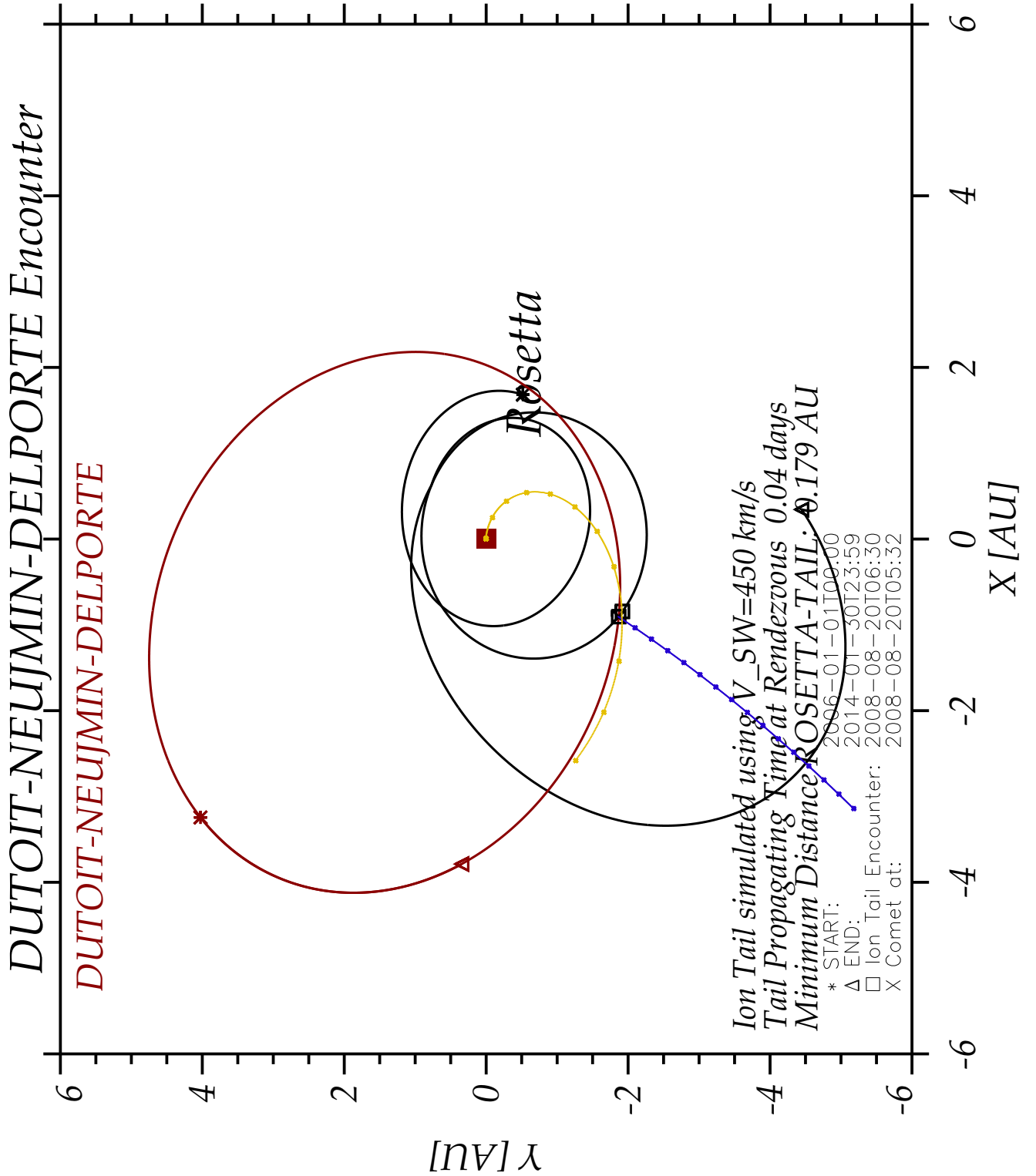


Figure 116: Overview: ROSETTA - DUTOIT-NEUJMIN-DELPORTE



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## 61 Comet 57P-A/DUTOIT-NEUJMIN-DELPORTE-A

<b>Comet:</b>	<b>57P-A/DUTOIT-NEUJMIN-DELPORTE-A</b>				
<b>Date of Encounter:</b>	<b>2008-08-20T06:00</b>				
<b>Minimum Distance</b>					
<b>ROSETTA/Ion Tail:</b>	<b>0.1790</b>				<b>AU</b>
<b>Position of ROSETTA</b>	<b>-0.8440</b>	<b>-1.9201</b>	<b>-0.0749</b>	<b>2.0987</b>	<b>AU,[x,y,z],r</b>
<b>Position of COMET:</b>	<b>-0.9049</b>	<b>-1.8670</b>	<b>0.0849</b>	<b>2.0764</b>	<b>AU,[x,y,z],r</b>
<b>Velocity of ROSETTA</b>	<b>12.72</b>	<b>-11.09</b>	<b>-2.28</b>	<b>17.03</b>	<b>km/s,[vx,vy,vz],v</b>
<b>Velocity of COMET:</b>	<b>24.34</b>	<b>-2.86</b>	<b>0.33</b>	<b>24.51</b>	<b>km/s,[vx,vy,vz],v</b>
<b>Tail Intersection Angle:</b>	<b>78.1</b>				<b>deg</b>
<b>Velocity of ROSETTA</b>					
<b>normal to Tail:</b>	<b>16.66</b>				<b>km/s</b>
<b>Progagting Time</b>					
<b>of Tail</b>	<b>0.040</b>				<b>days</b>

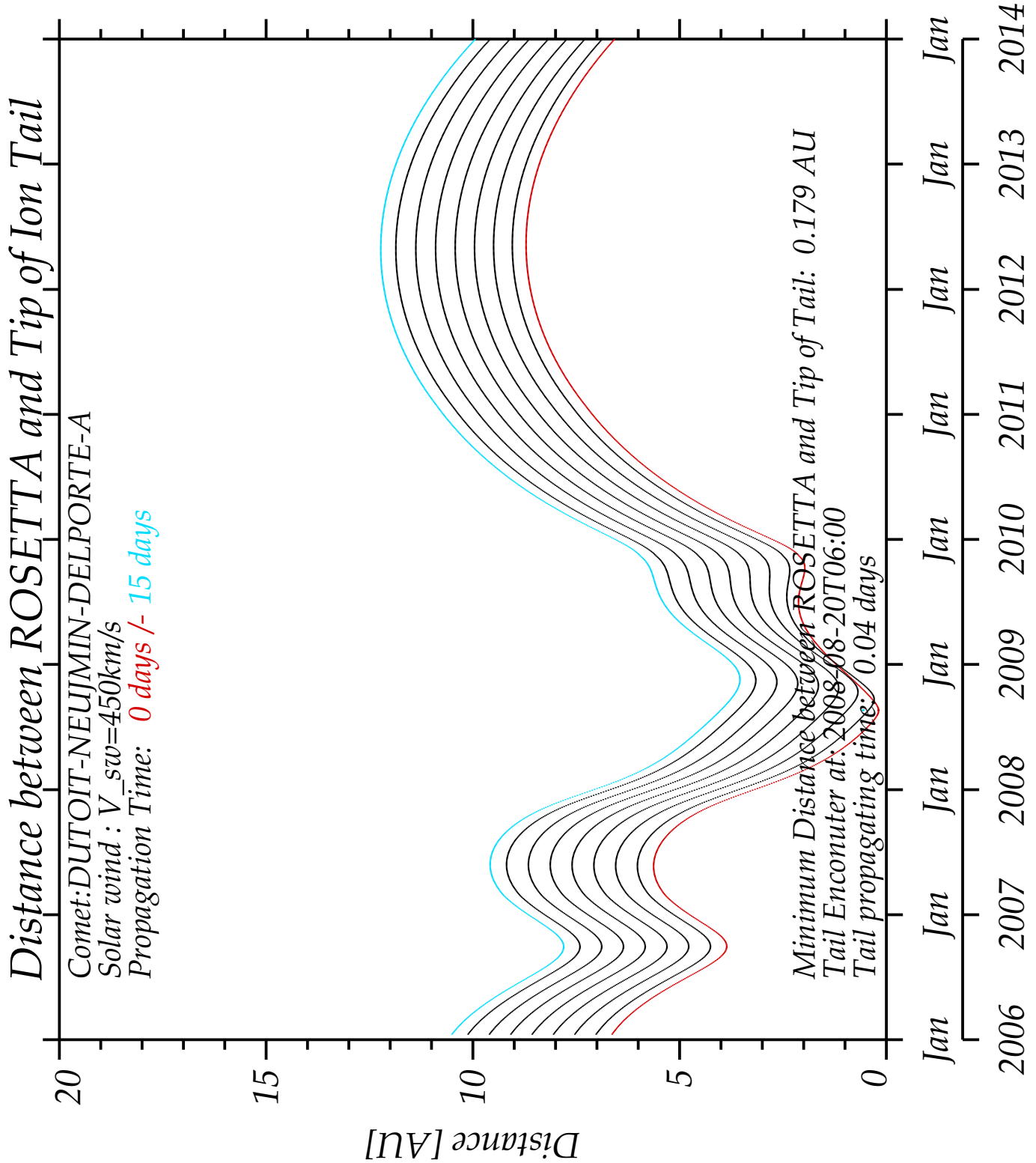


Figure 117: Minimum Distances: ROSETTA - DUTOIT-NEUJMIN-DELPORTE-A

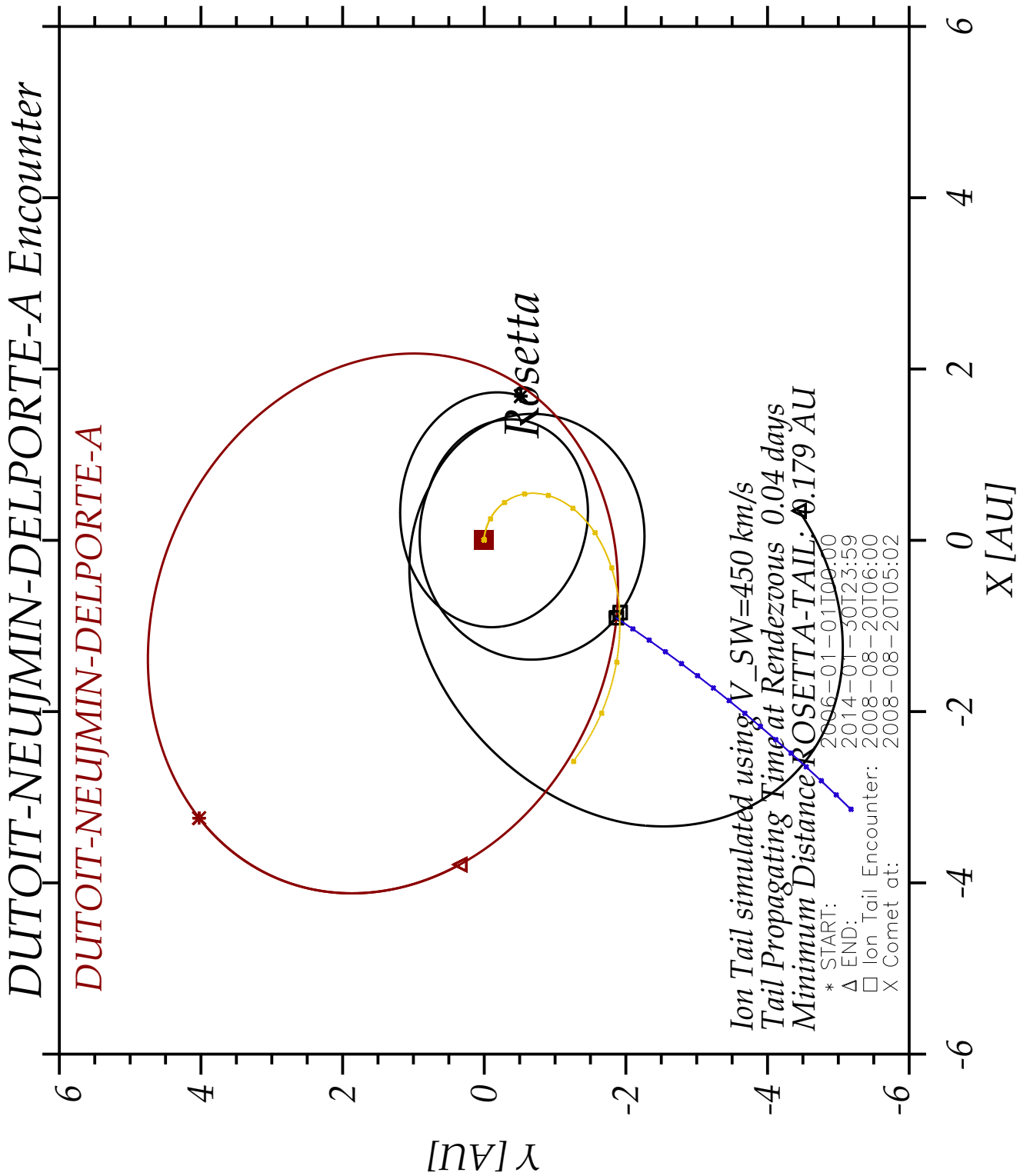


Figure 118: Overview: ROSETTA - DUTOIT-NEUJMIN-DELPORTE-A

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## **62 Comet 58P/JACKSON-NEUJMIN**

<b>Comet: 58P/JACKSON-NEUJMIN</b>
<b>No Encounter below 0.2000AU</b>

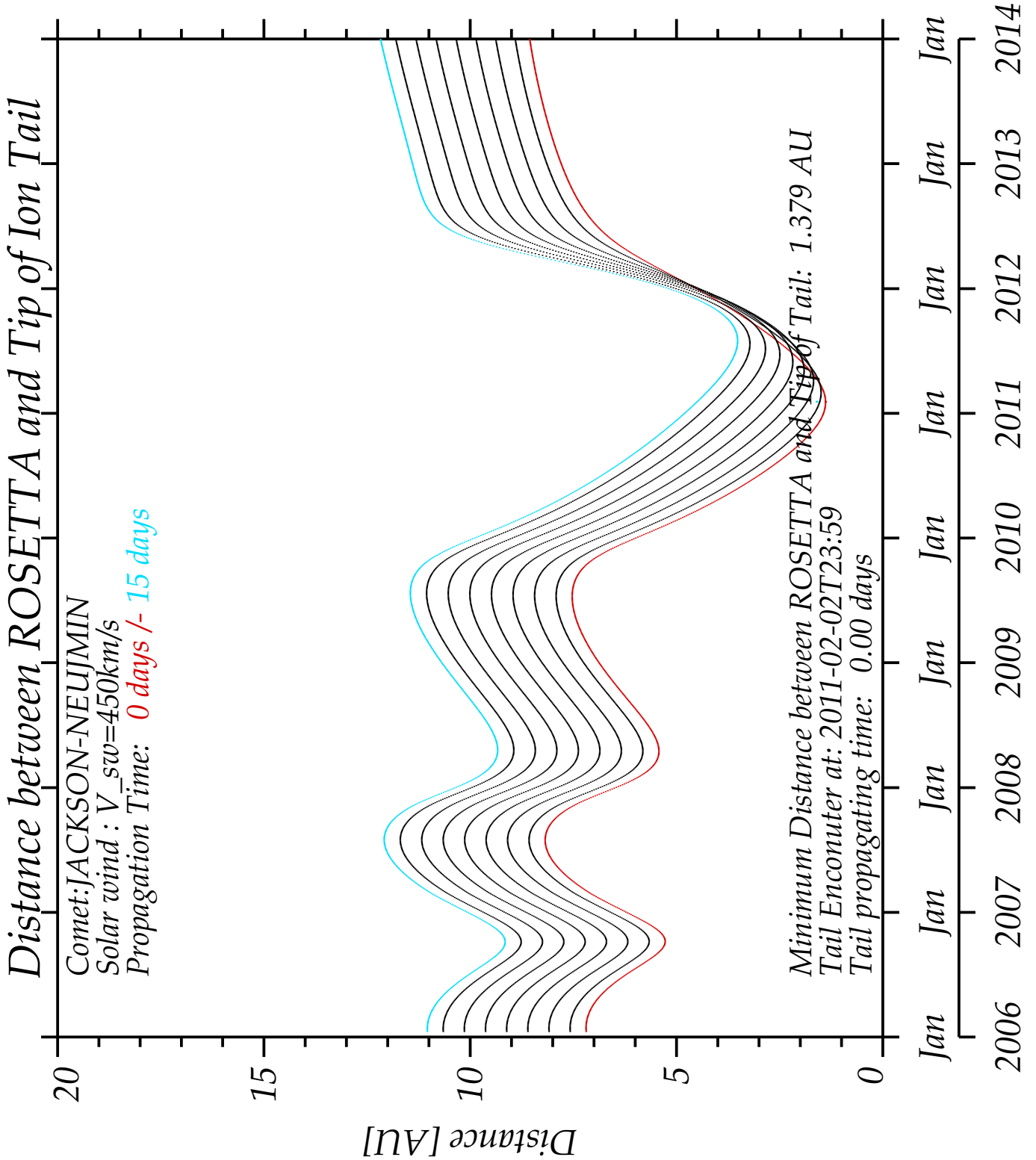


Figure 119: Minimum Distances: ROSETTA - JACKSON-NEUJMIN

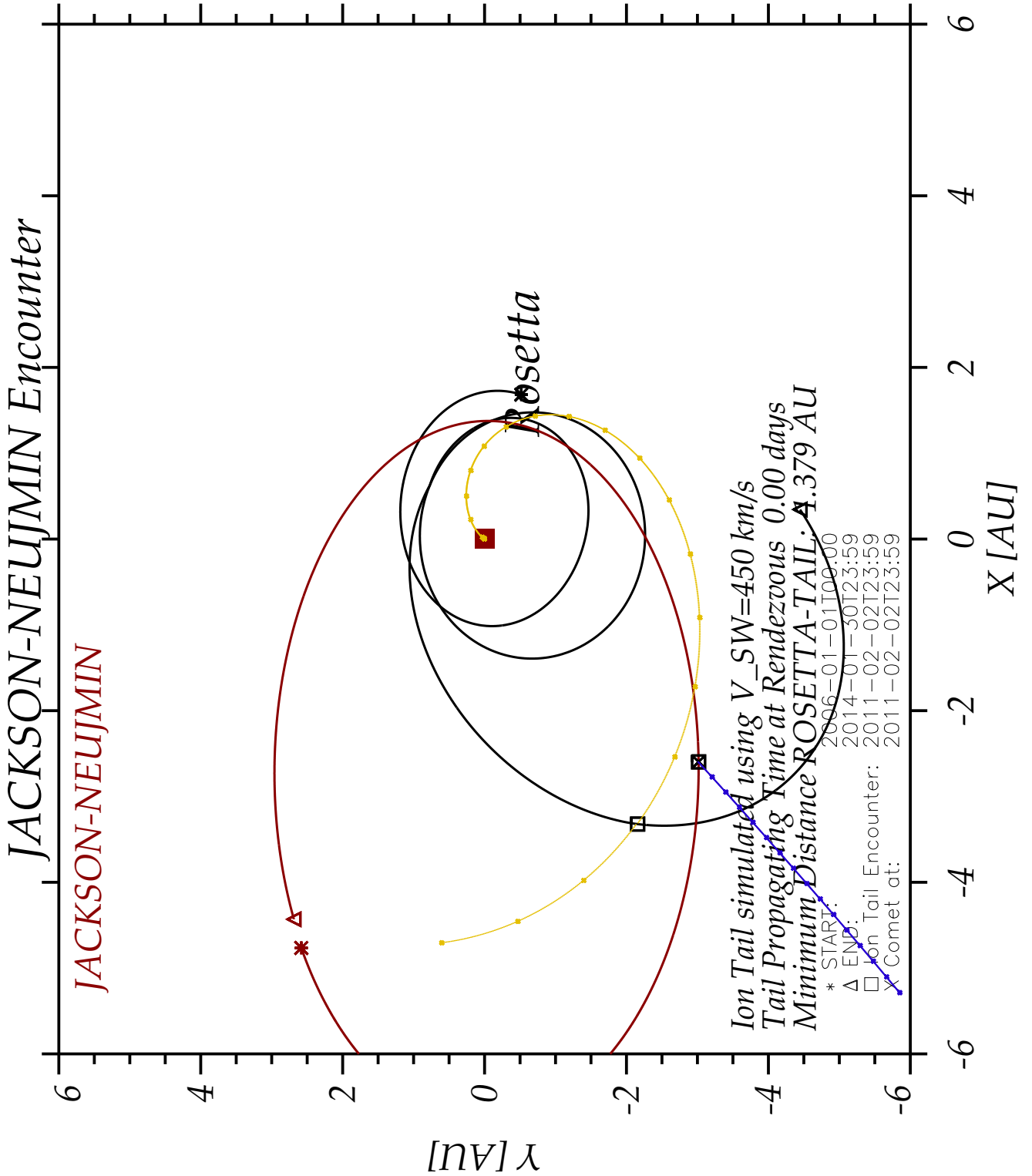


Figure 120: Overview: ROSETTA - JACKSON-NEUJMIN

<p style="text-align: center;">R O S E T T A</p>	<p>Document: RO-IGEP-TR-0020  Issue: 1  Revision: 2  Date: 2006-10-25  Page: 182</p>
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### 63 Comet 59P/KEARNS-KWEE

<p><b>Comet: 59P/KEARNS-KWEE</b></p>
<p><b>No Encounter below 0.2000AU</b></p>

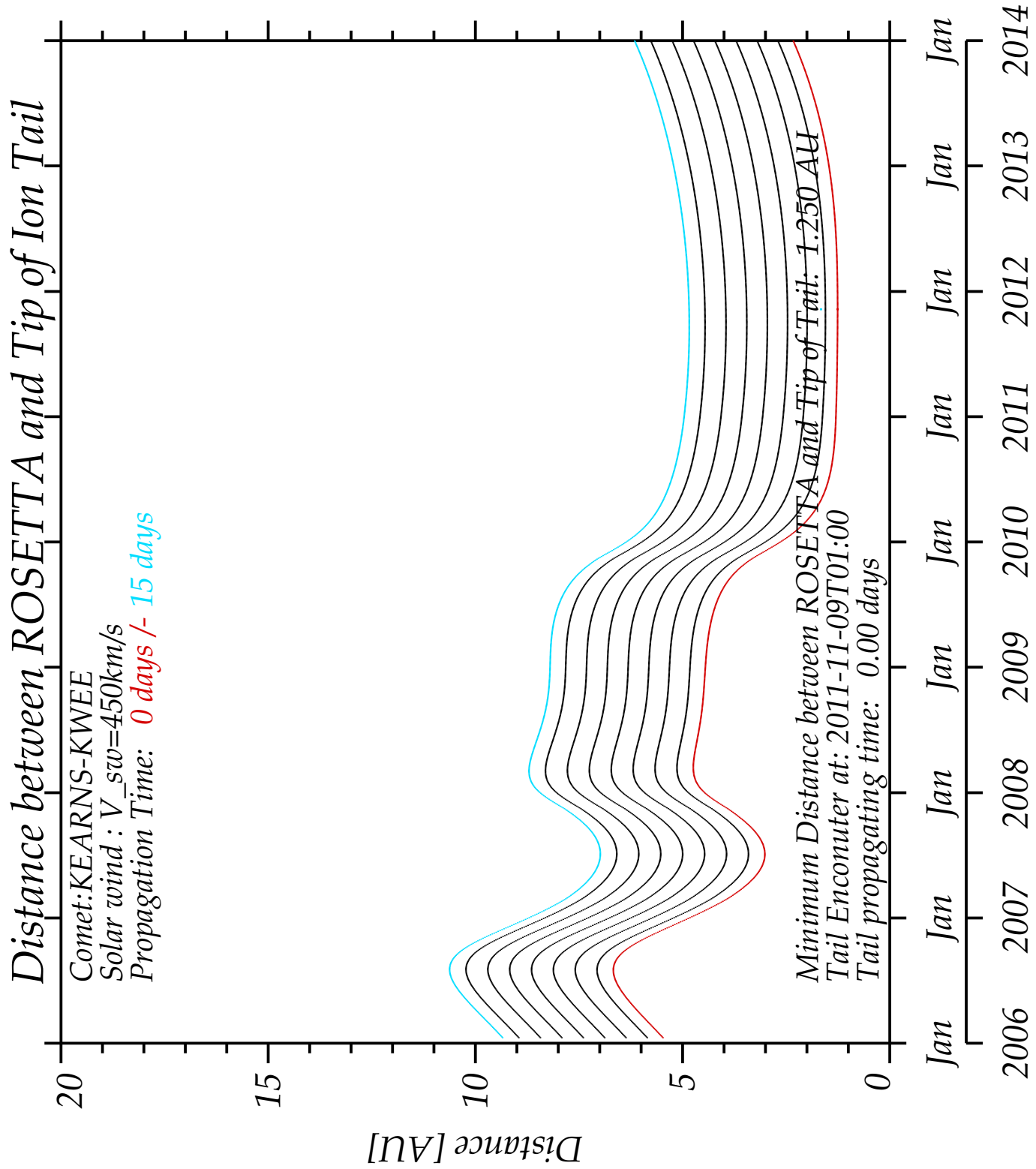


Figure 121: Minimum Distances: ROSETTA - KEARNS-KWEE



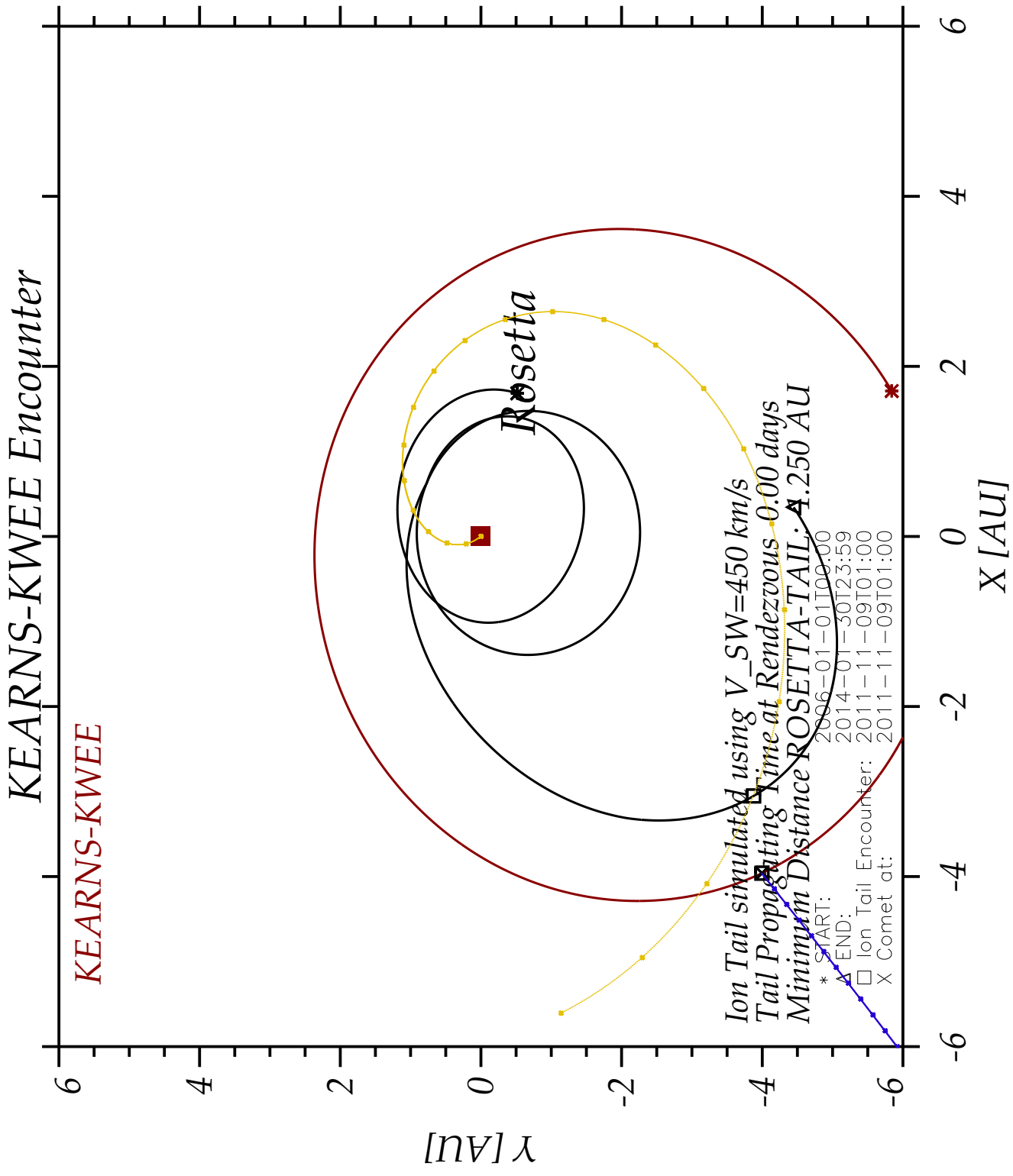


Figure 122: Overview: ROSETTA - KEARNS-KWEE

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## 64 Comet 60P/Tsuchinshan 2

<b>Comet: 60P/Tsuchinshan 2</b>
<b>No Encounter below 0.2000AU</b>

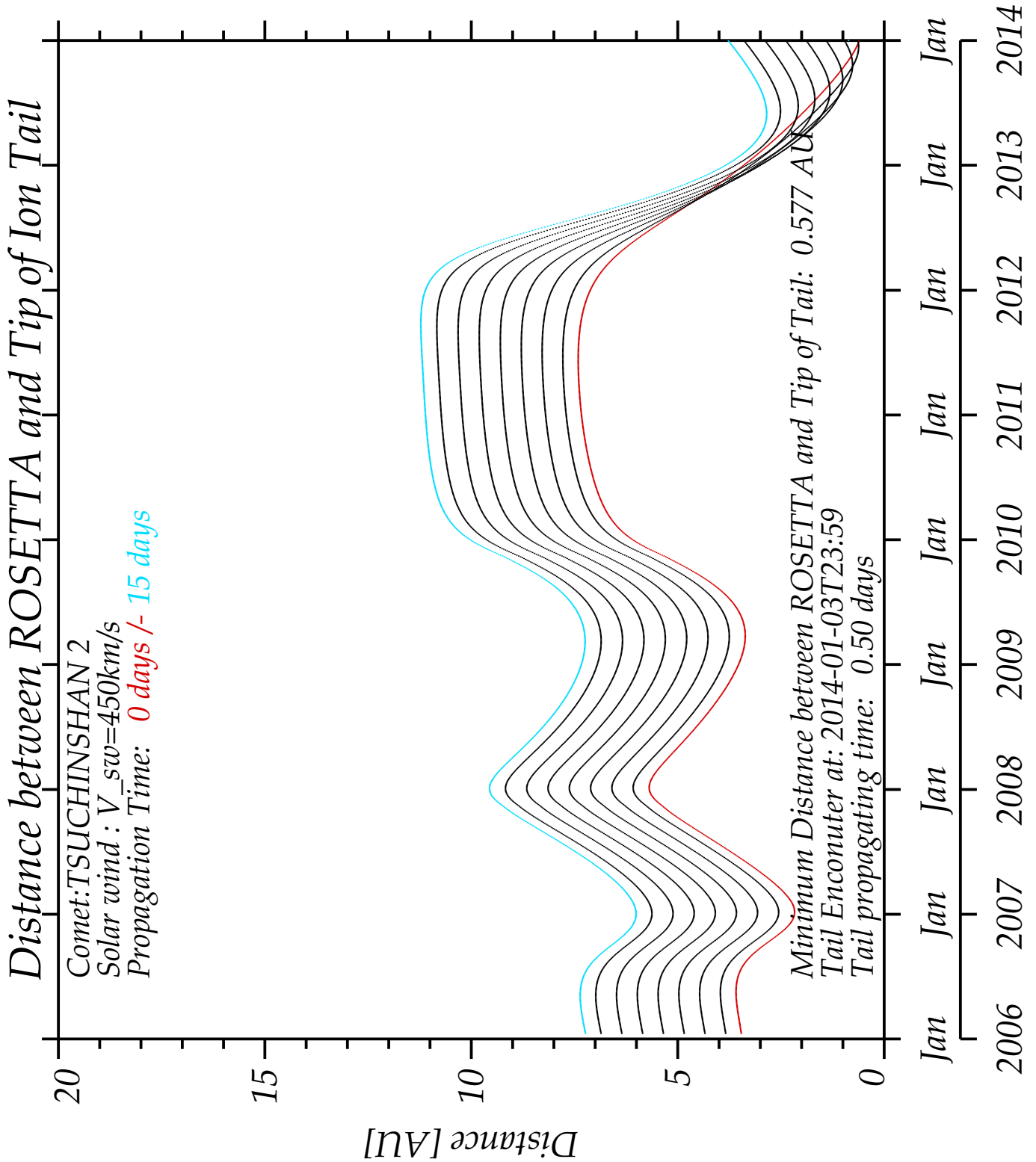


Figure 123: Minimum Distances: ROSETTA - TSUCHINSHAN 2

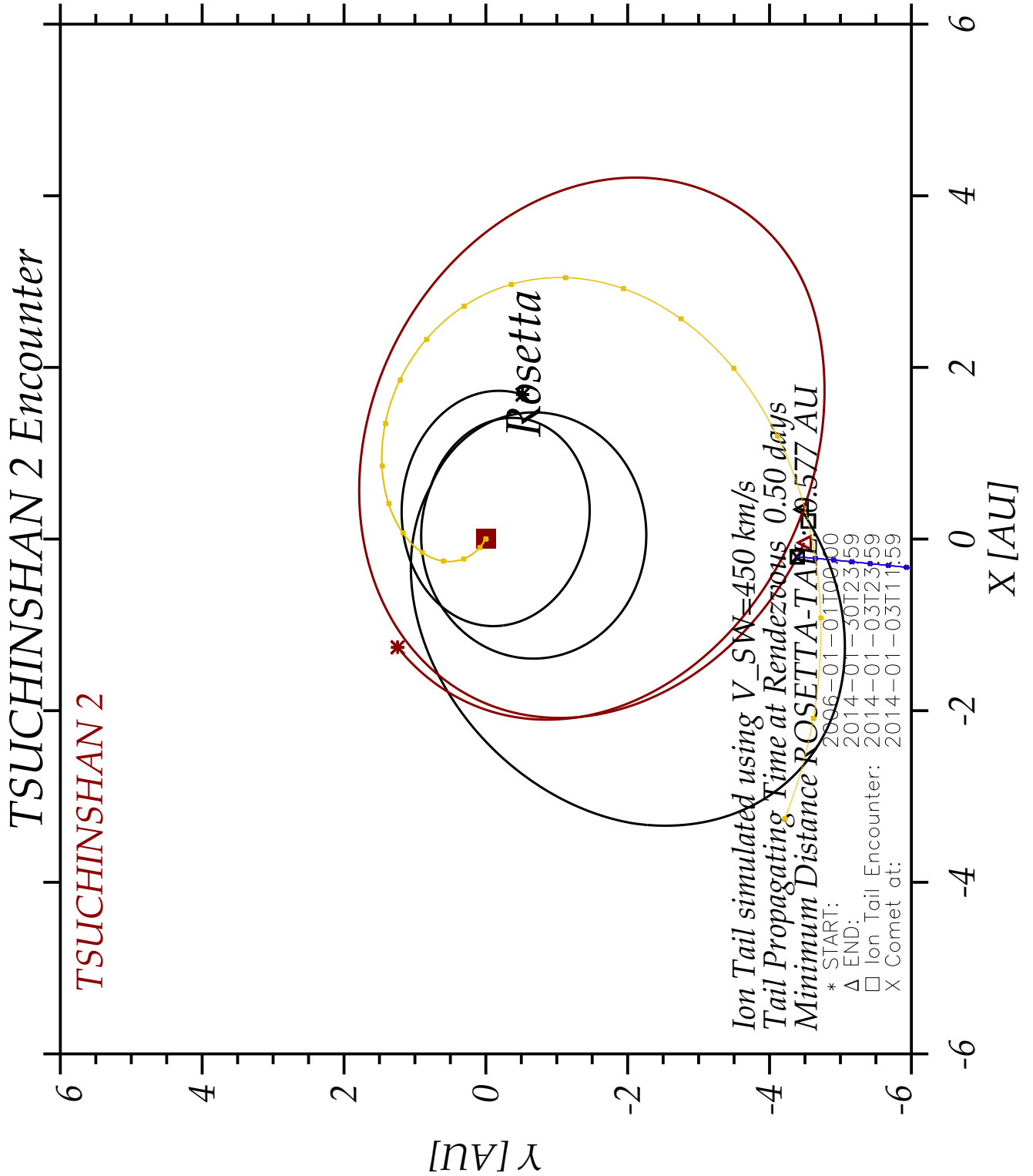


Figure 124: Overview: ROSETTA - TSUCHINSHAN 2

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## 65 Comet 61P/SHAJN-SCHALDACH

<b>Comet: 61P/SHAJN-SCHALDACH</b>
<b>No Encounter below 0.2000AU</b>

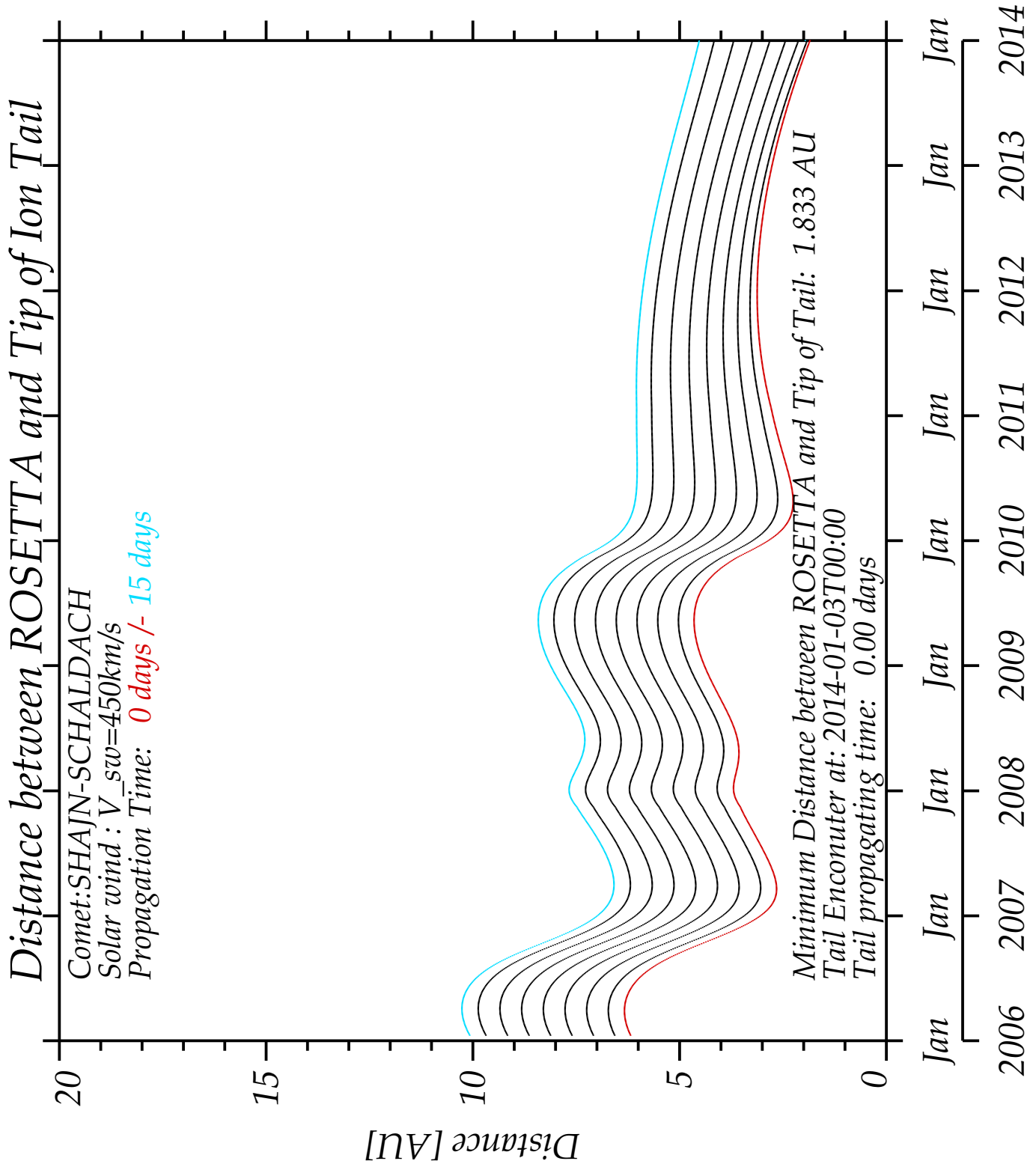


Figure 125: Minimum Distances: ROSETTA - SHAJN-SCHALDACH

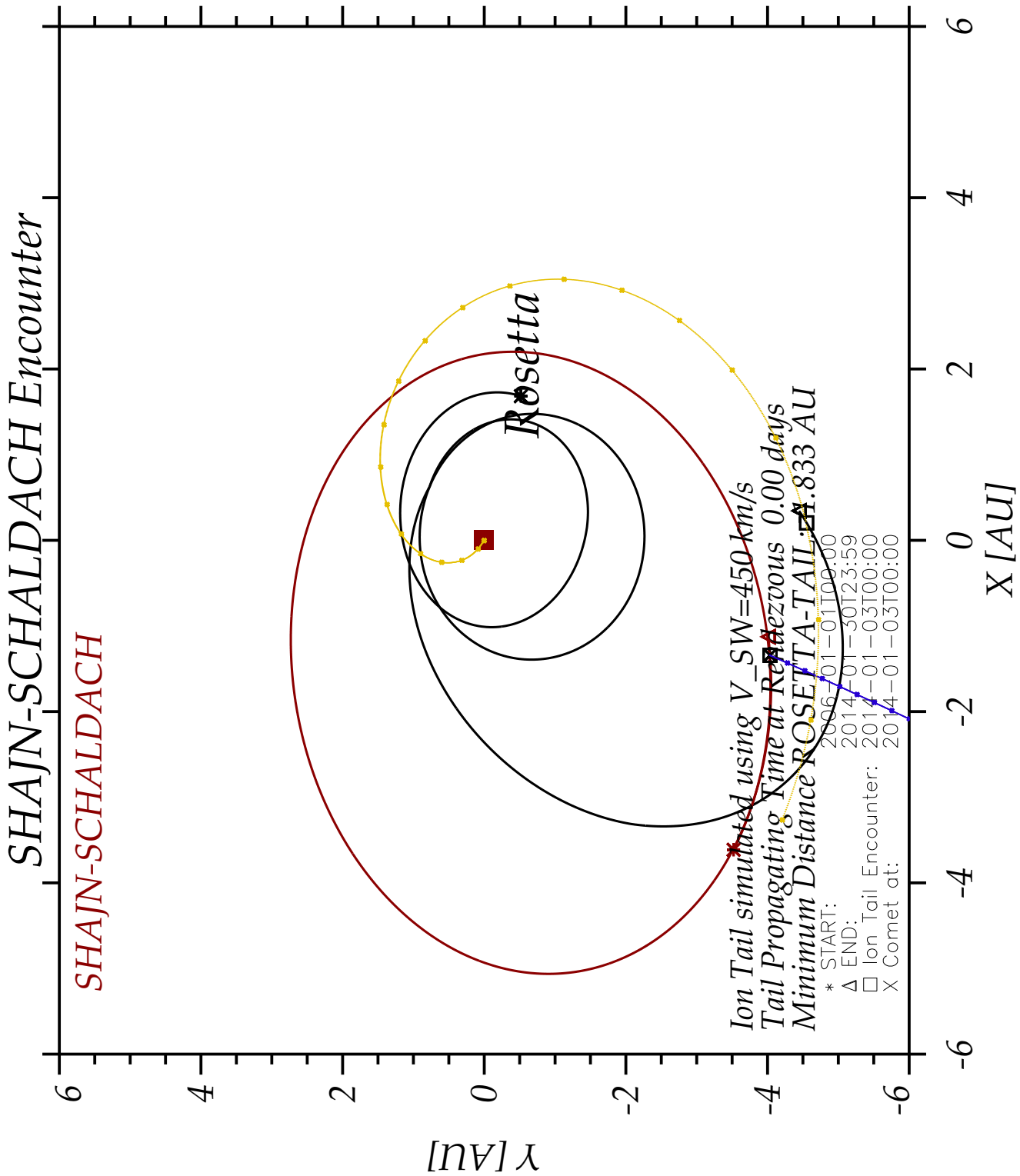


Figure 126: Overview: ROSETTA - SHAJN-SCHALDACH

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## 66 Comet 62P/Tsuchinshan 1

<b>Comet: 62P/Tsuchinshan 1</b>
<b>No Encounter below 0.2000AU</b>



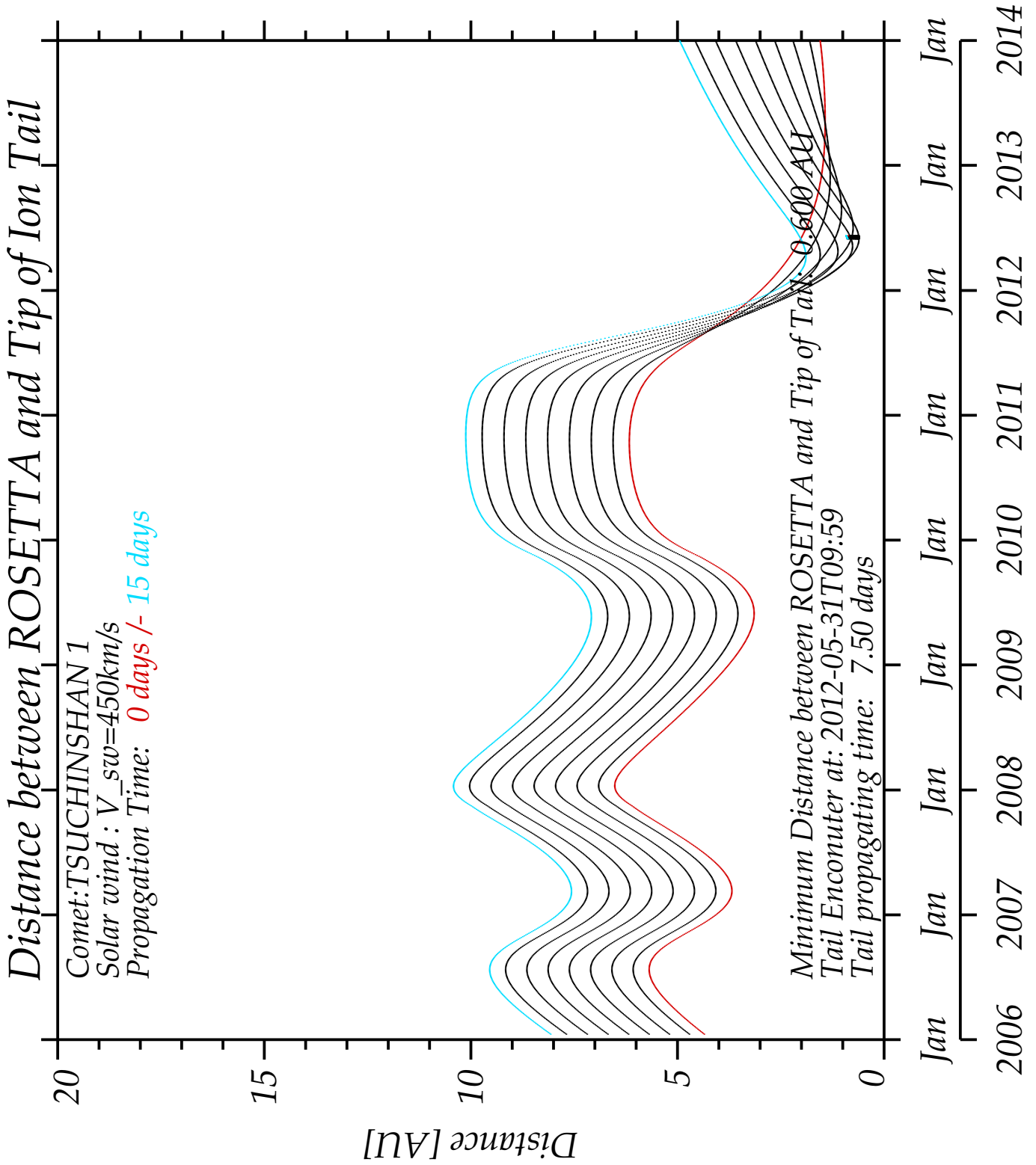


Figure 127: Minimum Distances: ROSETTA - TSUCHINSHAN 1

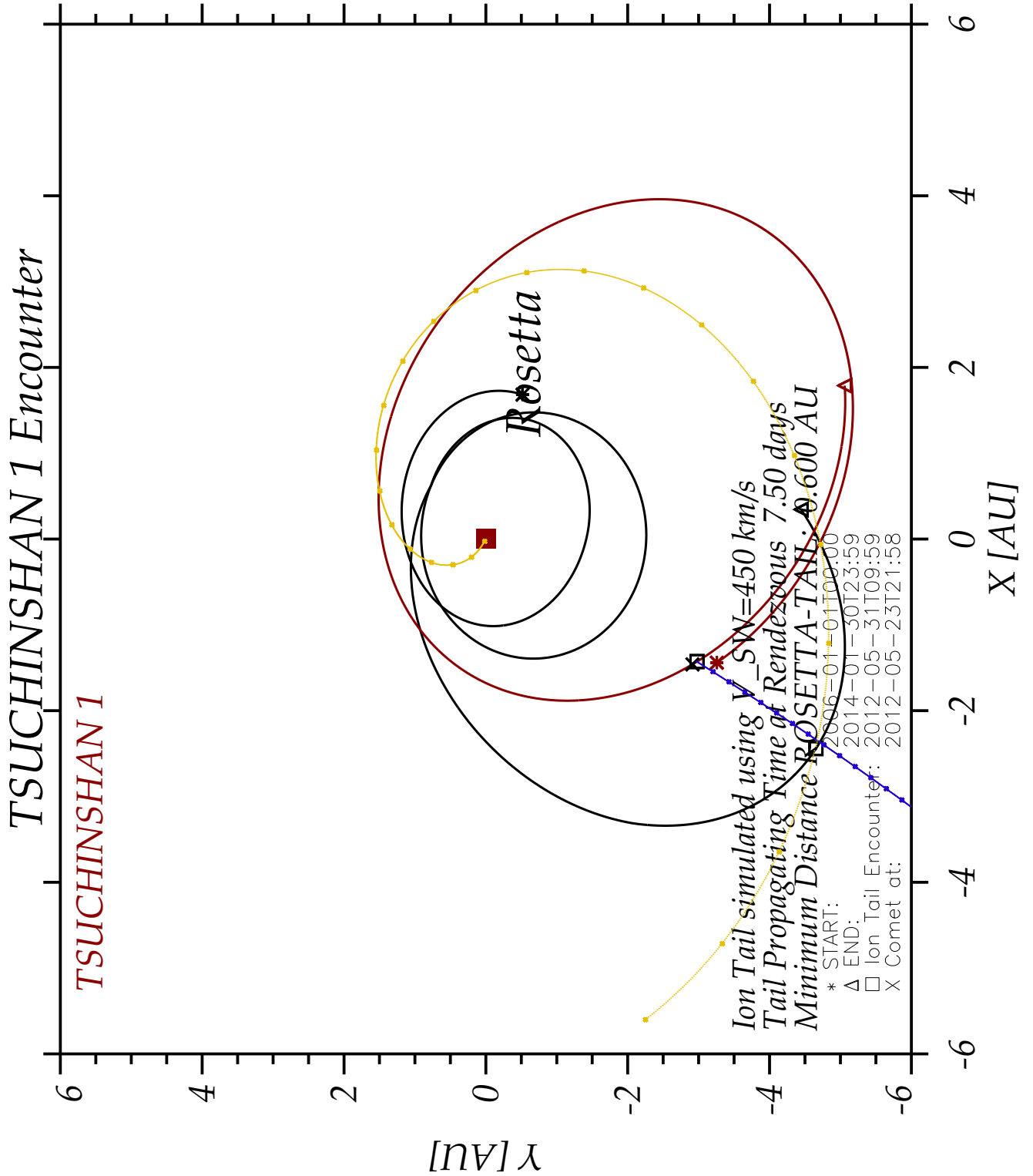


Figure 128: Overview: ROSETTA - TSUCHINSHAN 1

<p style="text-align: center;">R O S E T T A</p>	<p>Document: RO-IGEP-TR-0020  Issue: 1  Revision: 2  Date: 2006-10-25  Page: 194</p>
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## 67 Comet 63P/WILD 1

<p><b>Comet: 63P/WILD 1</b></p>
<p><b>No Encounter below 0.2000AU</b></p>

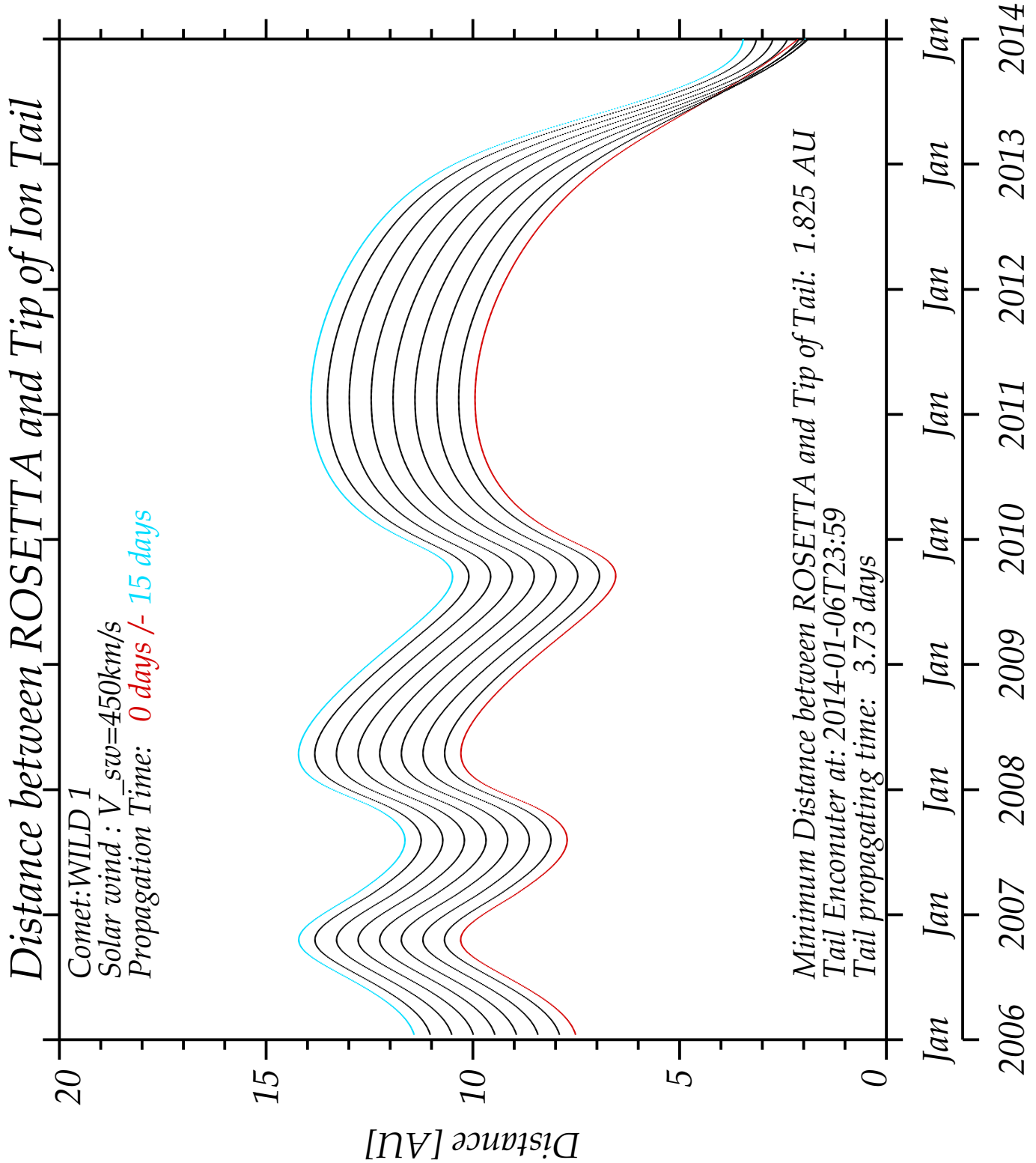


Figure 129: Minimum Distances: ROSETTA - WILD 1

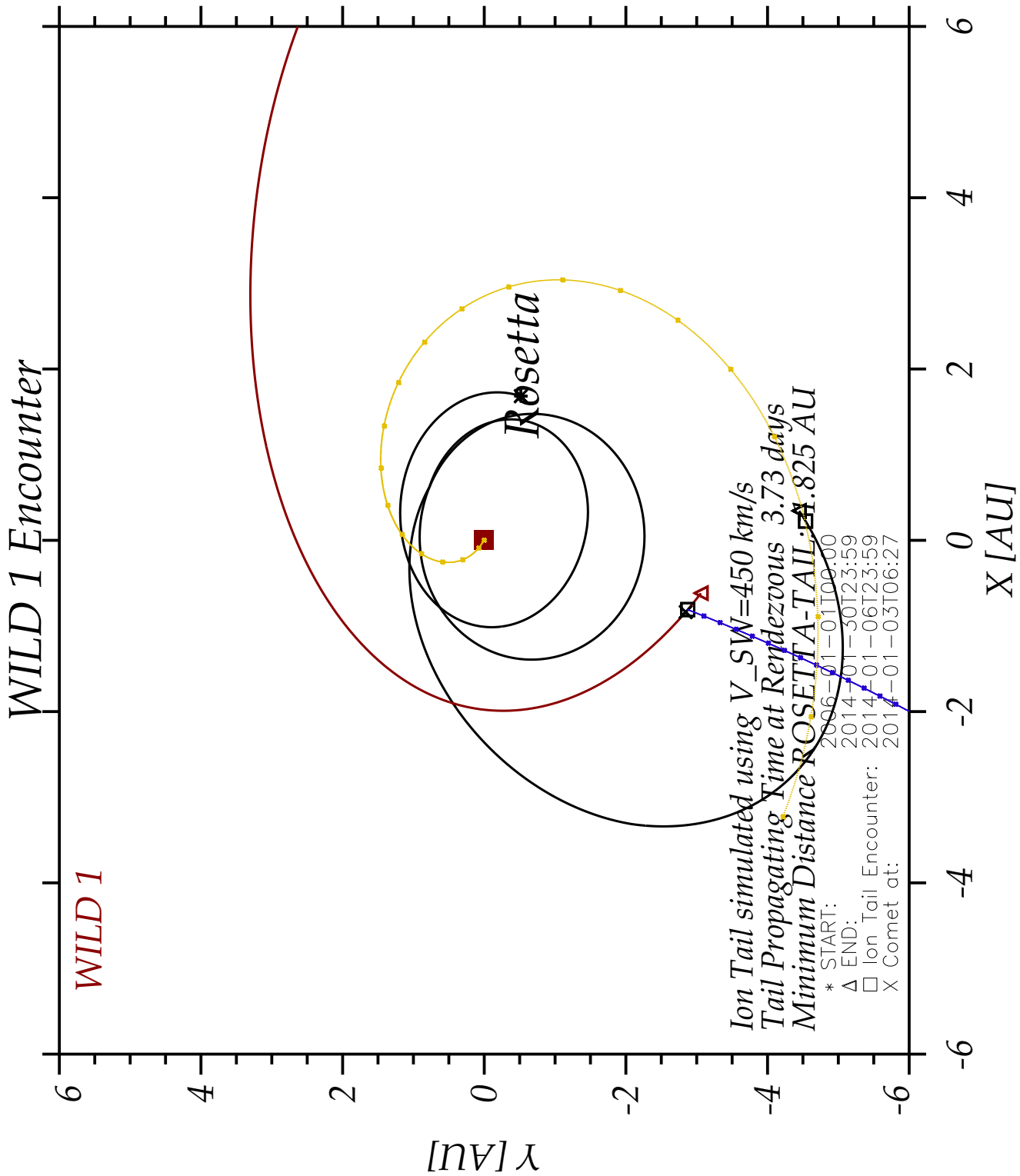


Figure 130: Overview: ROSETTA - WILD 1

<p style="text-align: center;">R O S E T T A</p>	<p>Document: RO-IGEP-TR-0020 Issue: 1 Revision: 2</p>
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## 68 Comet 64P/SWIFT-GEHRELS

<p><b>Comet: 64P/SWIFT-GEHRELS</b></p>
<p><b>No Encounter below 0.2000AU</b></p>

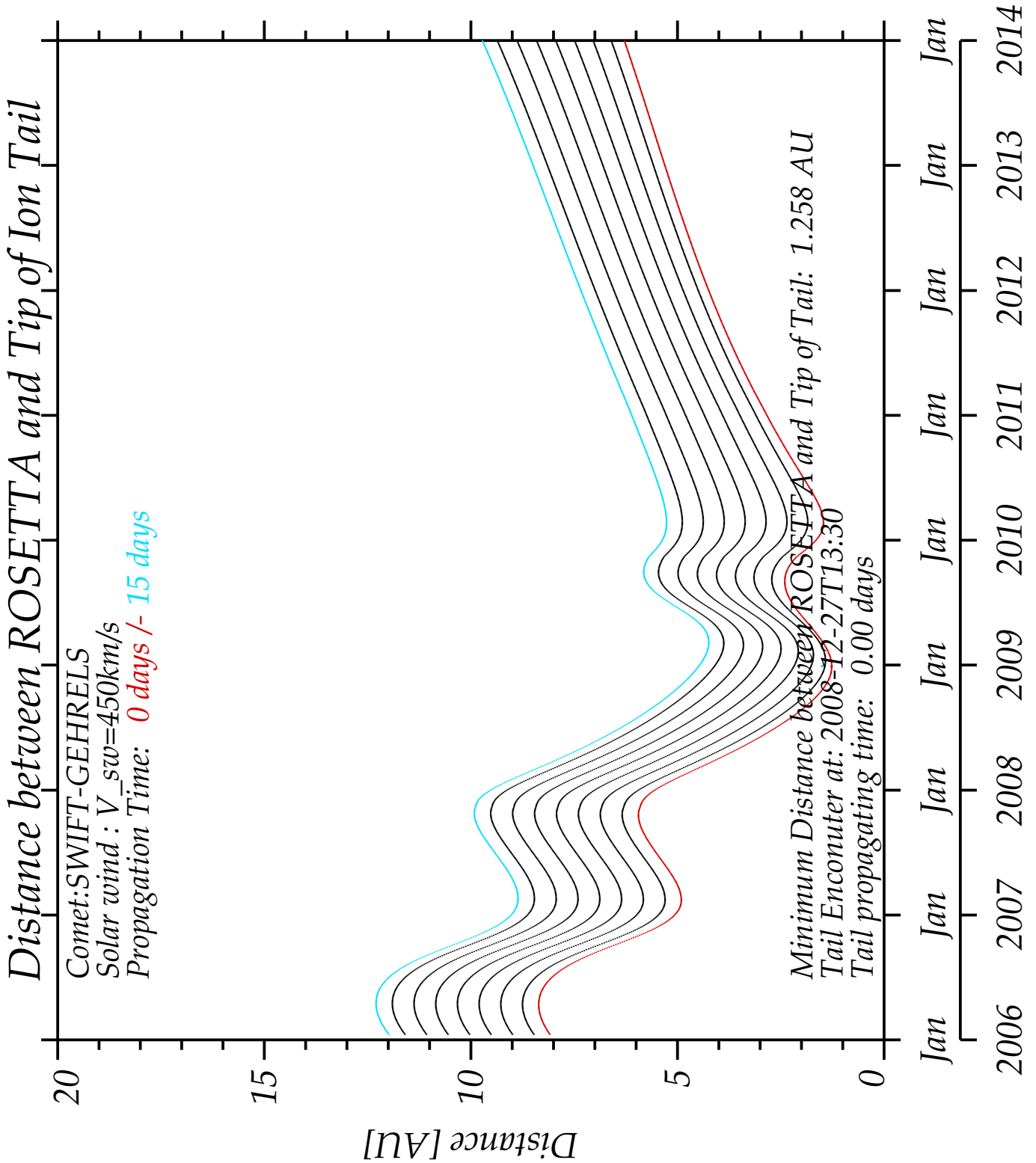


Figure 131: Minimum Distances: ROSETTA - SWIFT-GEHRELS

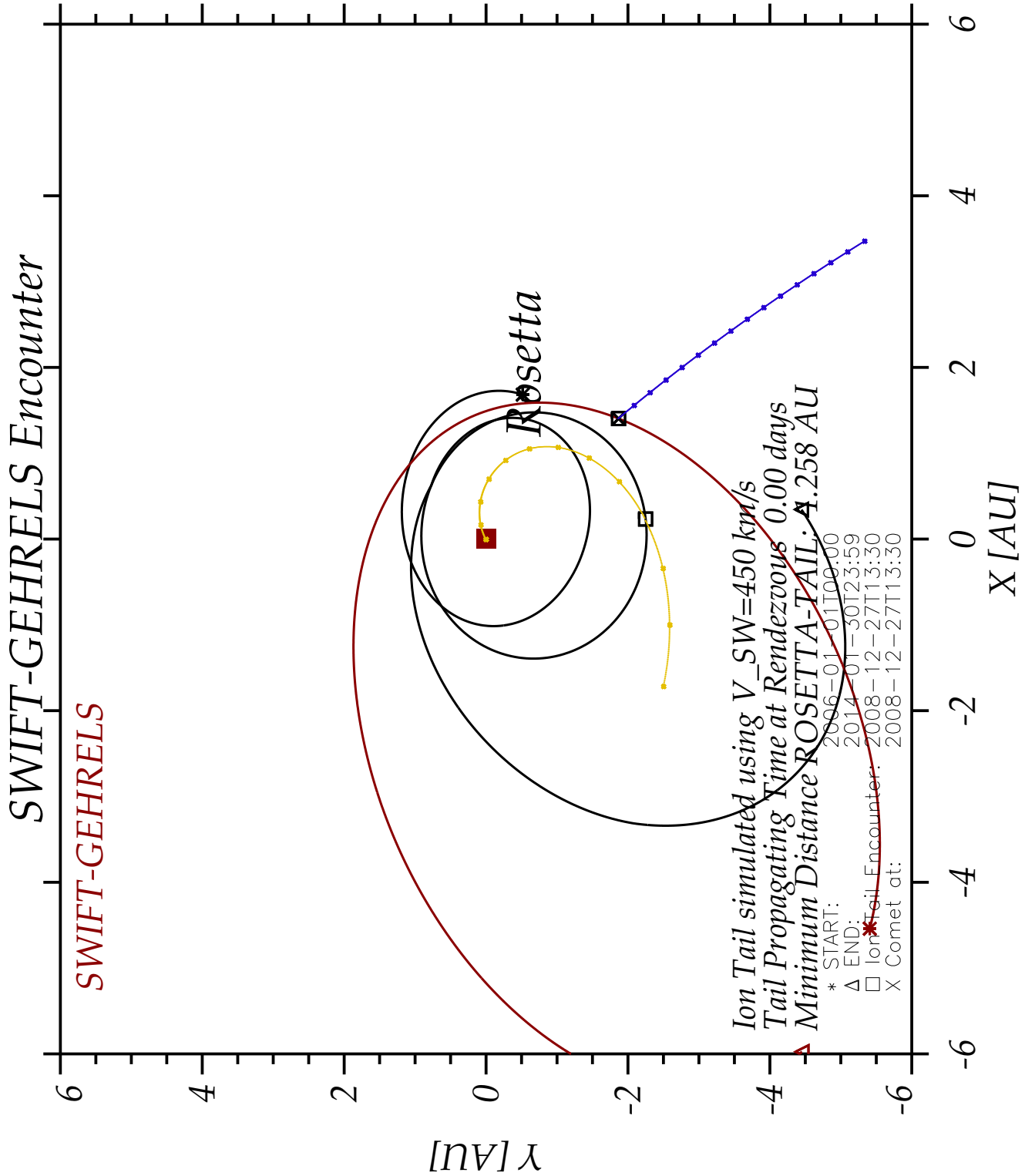


Figure 132: Overview: ROSETTA - SWIFT-GEHRELS



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## **69 Comet 65P/GUNN**

<b>Comet: 65P/GUNN</b>
<b>No Encounter below 0.2000AU</b>

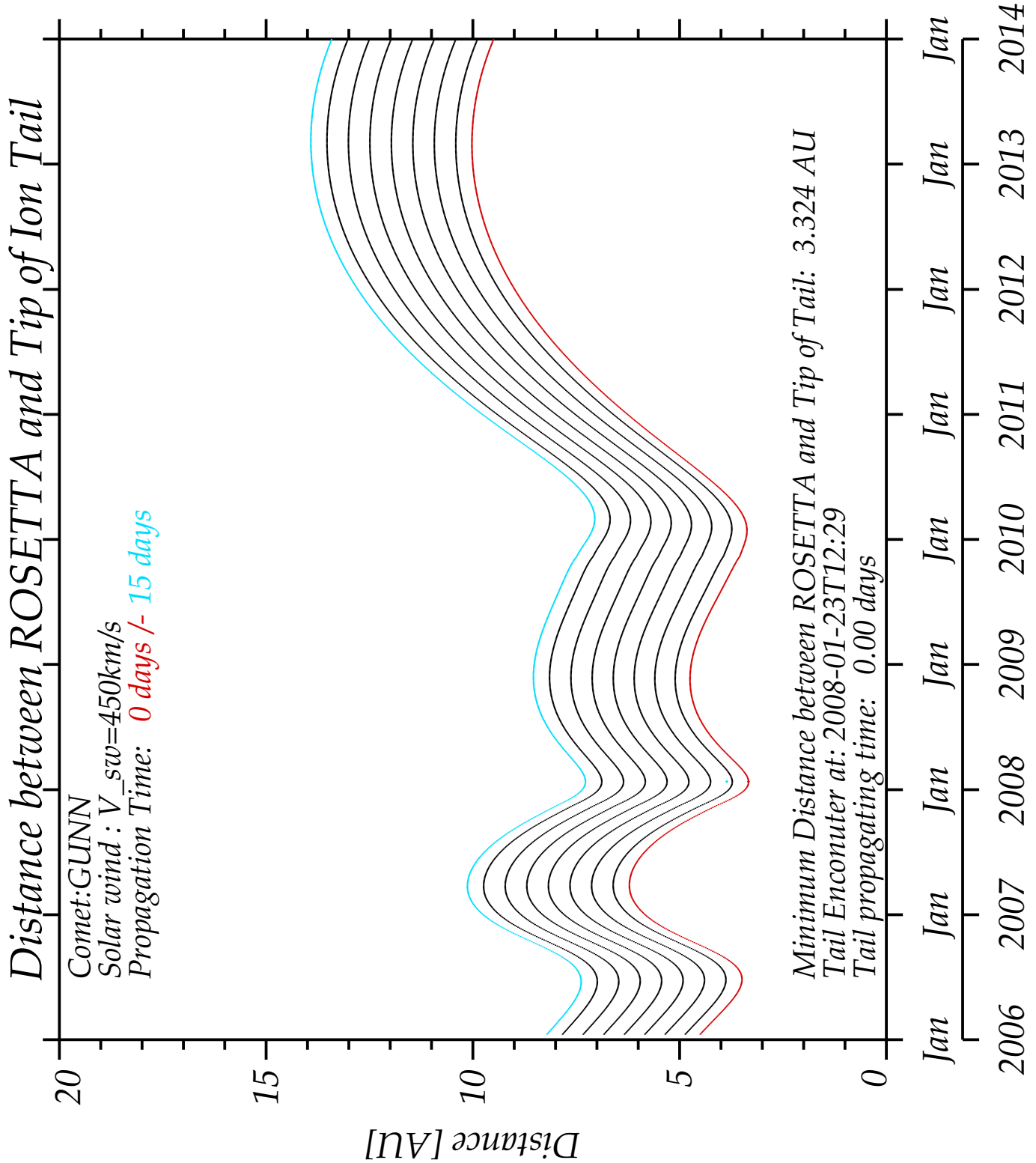


Figure 133: Minimum Distances: ROSETTA - GUNN

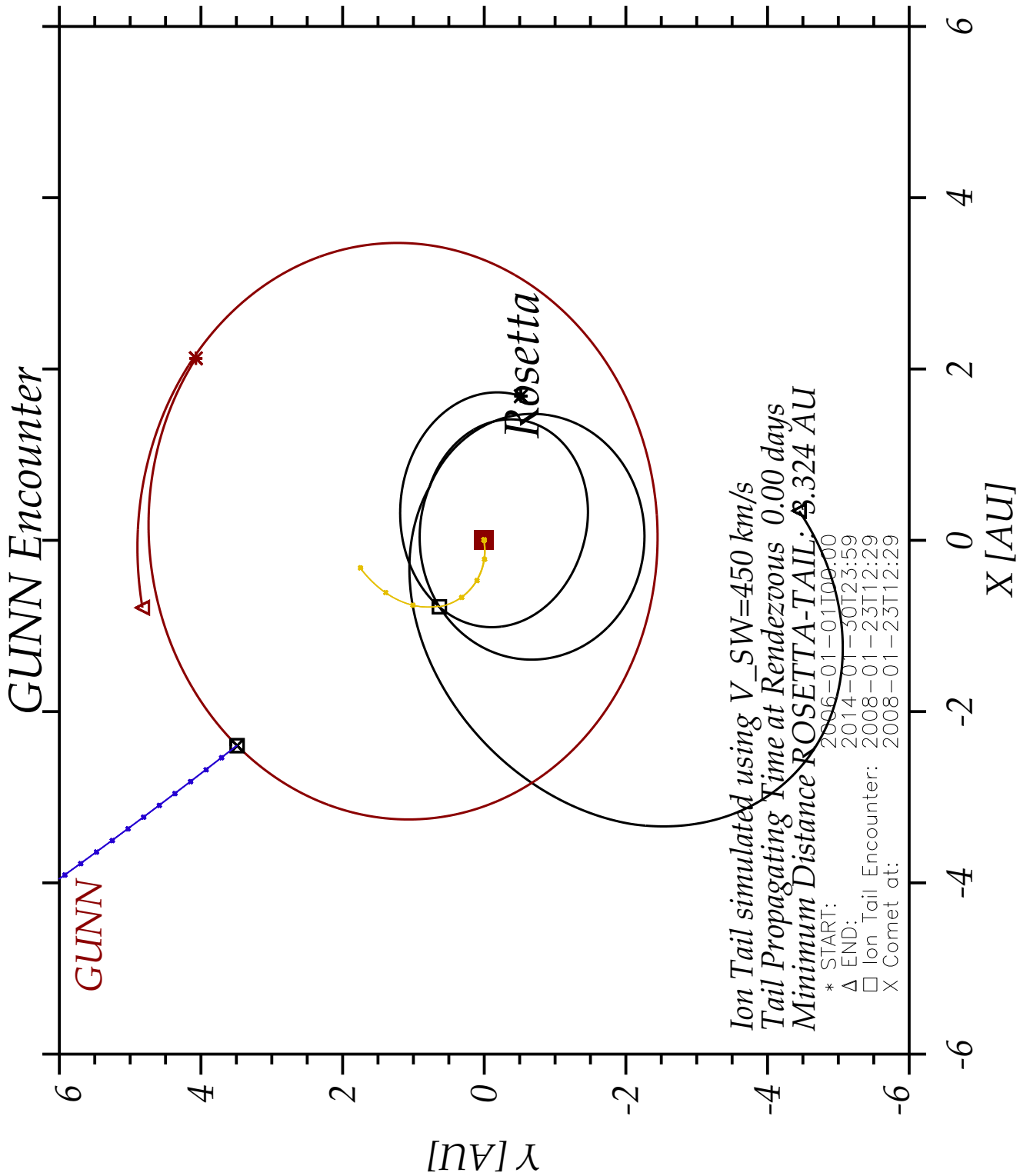


Figure 134: Overview: ROSETTA - GUNN

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## 70 Comet 66P/DU TOIT 1

<b>Comet: 66P/DU TOIT 1</b>
<b>No Encounter below 0.2000AU</b>

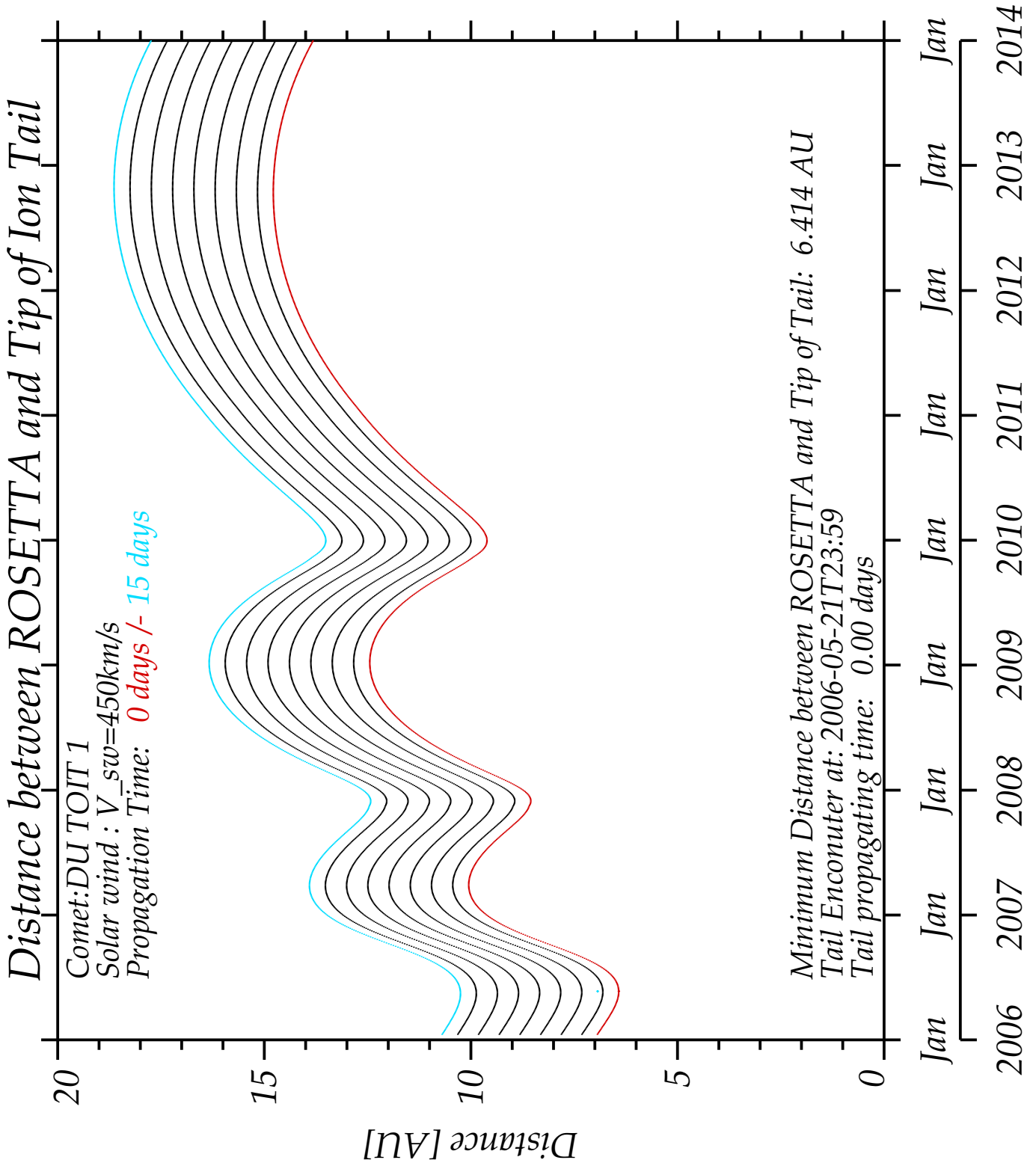


Figure 135: Minimum Distances: ROSETTA - DU TOIT 1

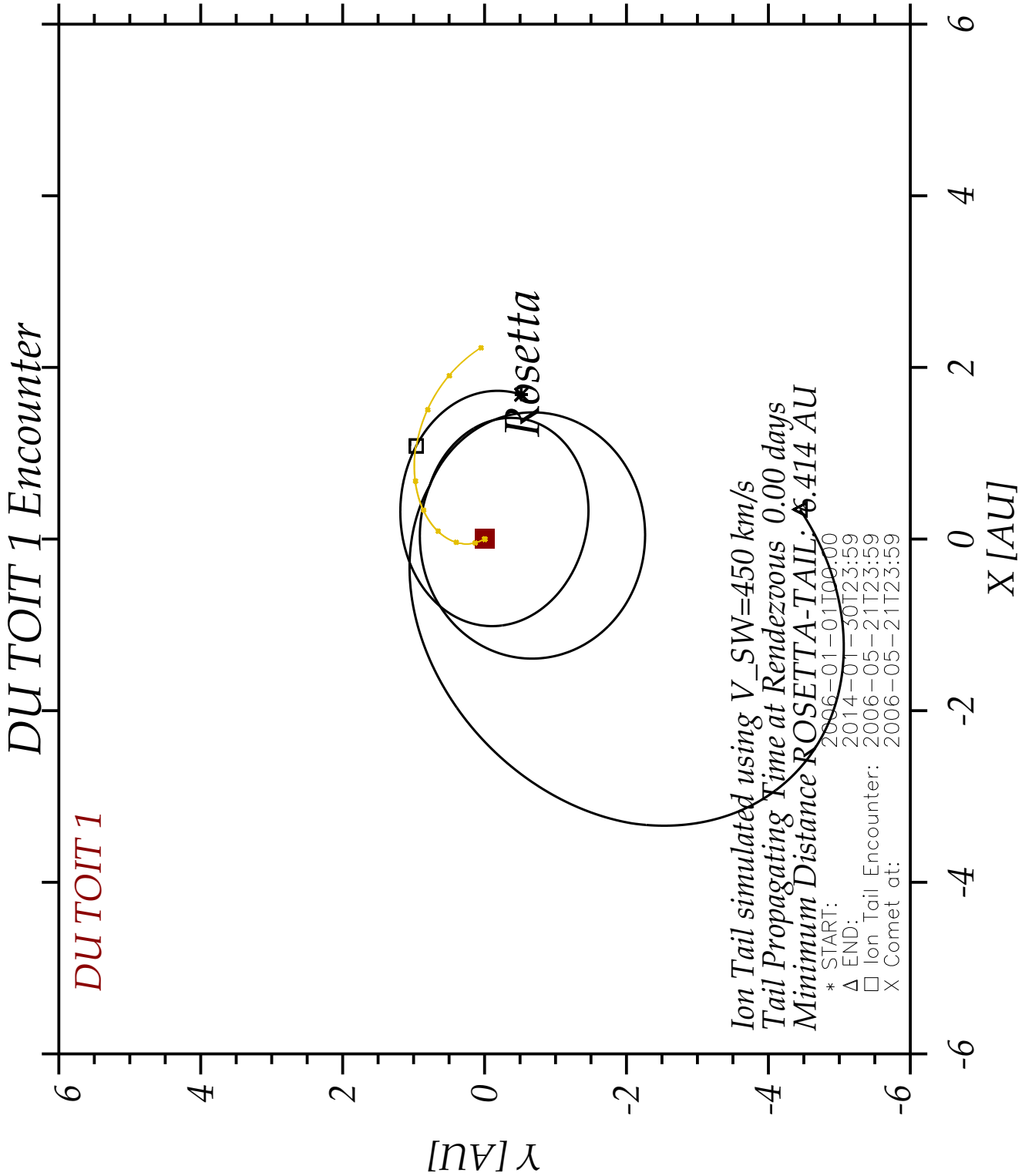


Figure 136: Overview: ROSETTA - DU TOIT 1

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## 71 Comet 67P/CHURYUMOV-GERASIMENKO

<b>Comet:</b>	<b>67P/CHURYUMOV-GERASIMENKO</b>				
<b>Date of Encounter:</b>	<b>2014-01-03T00:00</b>				
<b>Minimum Distance</b>					
<b>ROSETTA/Ion Tail:</b>	<b>0.0650</b>				<b>AU</b>
<b>Position of ROSETTA</b>	<b>0.2036</b>	<b>-4.5519</b>	<b>-0.3914</b>	<b>4.5732</b>	<b>AU,[x,y,z],r</b>
<b>Position of COMET:</b>	<b>0.1804</b>	<b>-4.6123</b>	<b>-0.3821</b>	<b>4.6317</b>	<b>AU,[x,y,z],r</b>
<b>Velocity of ROSETTA</b>	<b>8.64</b>	<b>6.22</b>	<b>-0.18</b>	<b>10.65</b>	<b>km/s,[vx,vy,vz],v</b>
<b>Velocity of COMET:</b>	<b>8.92</b>	<b>6.99</b>	<b>-0.29</b>	<b>11.33</b>	<b>km/s,[vx,vy,vz],v</b>
<b>Tail Intersection Angle:</b>	<b>123.3</b>				<b>deg</b>
<b>Velocity of ROSETTA</b>					
<b>normal to Tail:</b>	<b>8.90</b>				<b>km/s</b>
<b>Progagting Time</b>					
<b>of Tail</b>	<b>0.000</b>				<b>days</b>

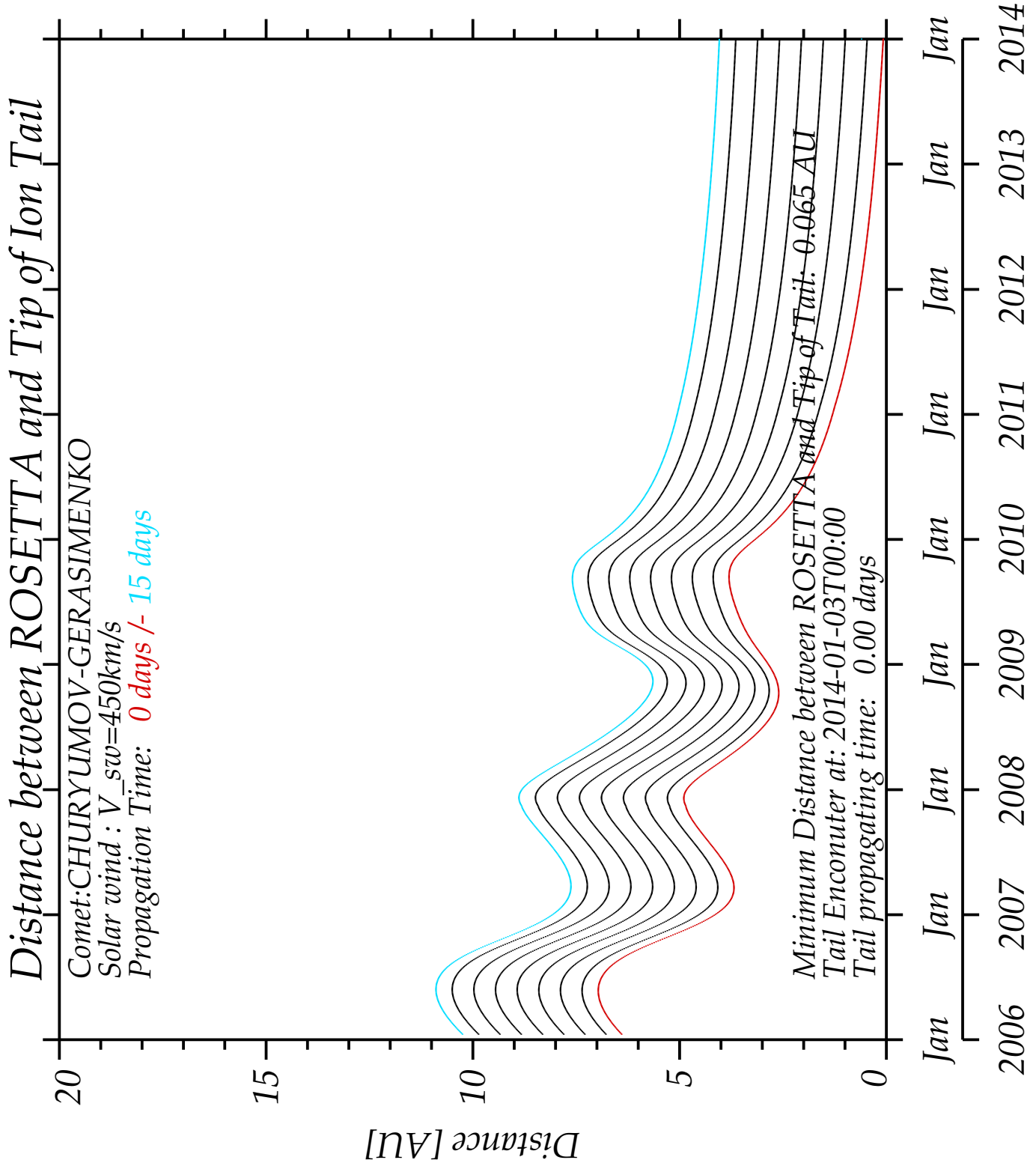


Figure 137: Minimum Distances: ROSETTA - CHURYUMOV-GERASIMENKO



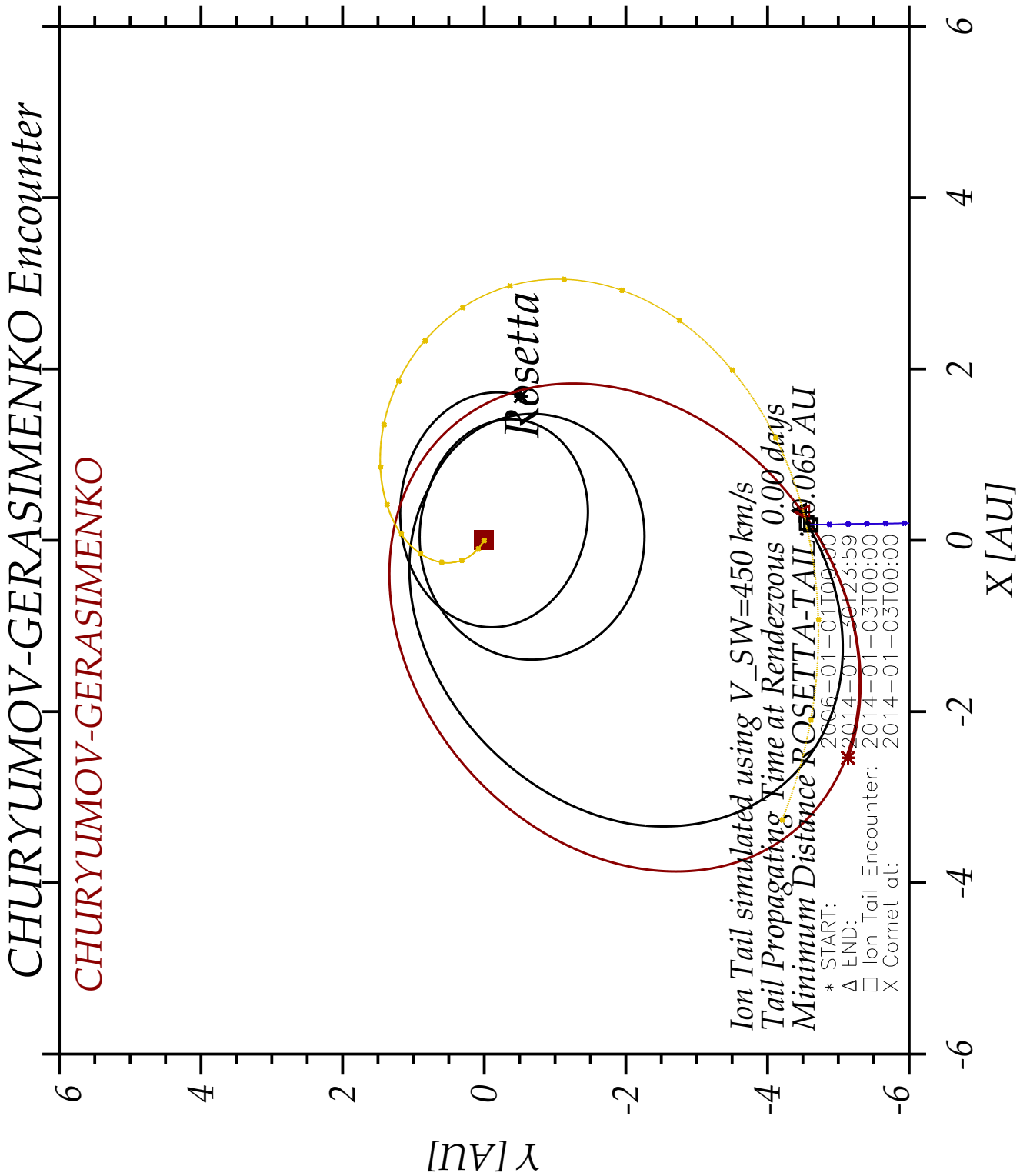


Figure 138: Overview: ROSETTA - CHURYUMOV-GERASIMENKO

<p style="text-align: center;">R O S E T T A</p>	<p>Document: RO-IGEP-TR-0020 Issue: 1 Revision: 2</p>
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## 72 Comet 68P/KLEMOLA

<p><b>Comet: 68P/KLEMOLA</b></p>
<p><b>No Encounter below 0.2000AU</b></p>

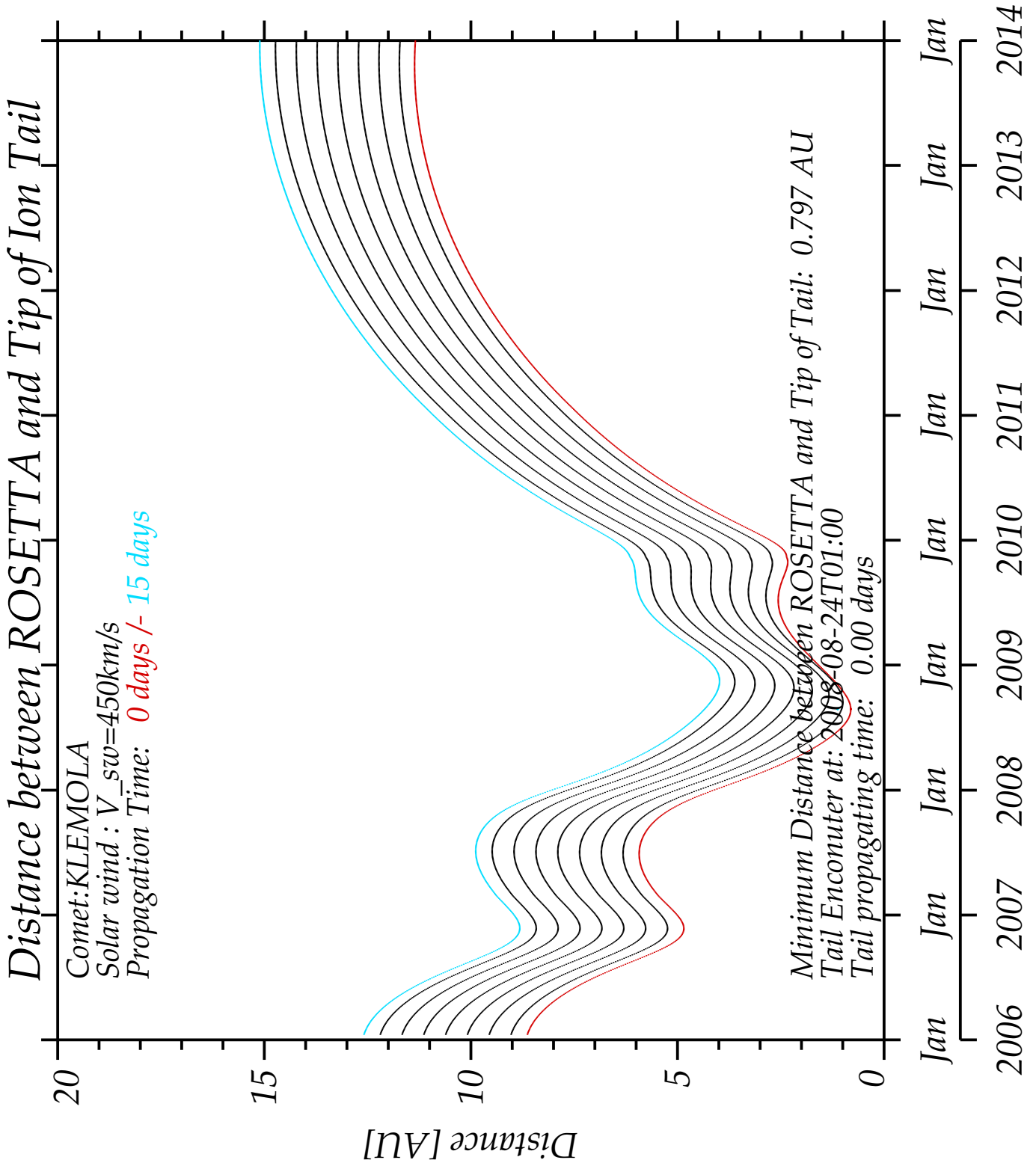


Figure 139: Minimum Distances: ROSETTA - KLEMOLA

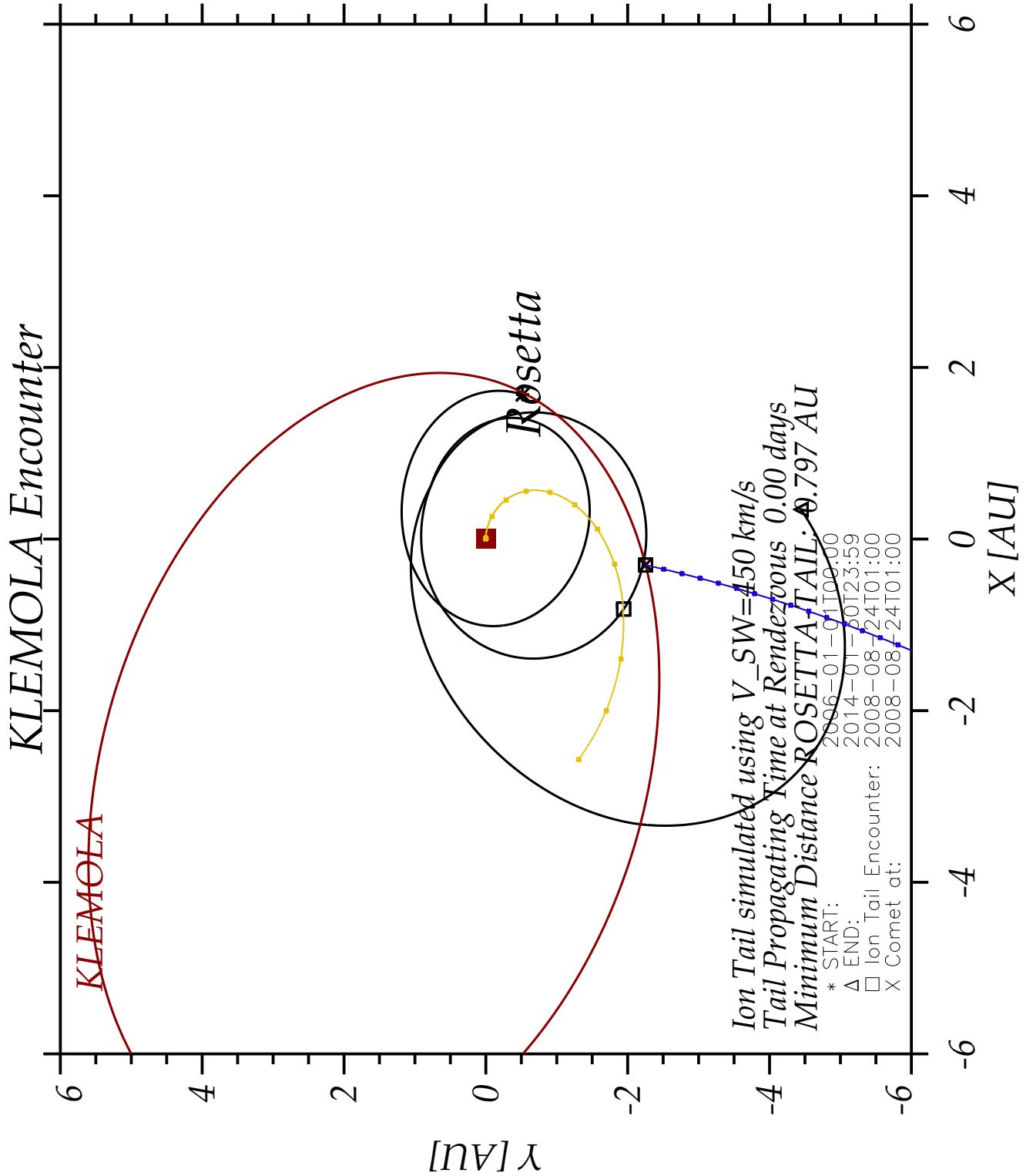


Figure 140: Overview: ROSETTA - KLEMOLA

<p style="text-align: center;">R O S E T T A</p>	<p>Document: RO-IGEP-TR-0020  Issue: 1  Revision: 2  Date: 2006-10-25  Page: 212</p>
<p>IGEP Institut für Geophysik u. extraterr. Physik  Technische Universität Braunschweig</p>	

### 73 Comet 69P/TAYLOR

<p><b>Comet: 69P/TAYLOR</b></p>
<p><b>No Encounter below 0.2000AU</b></p>



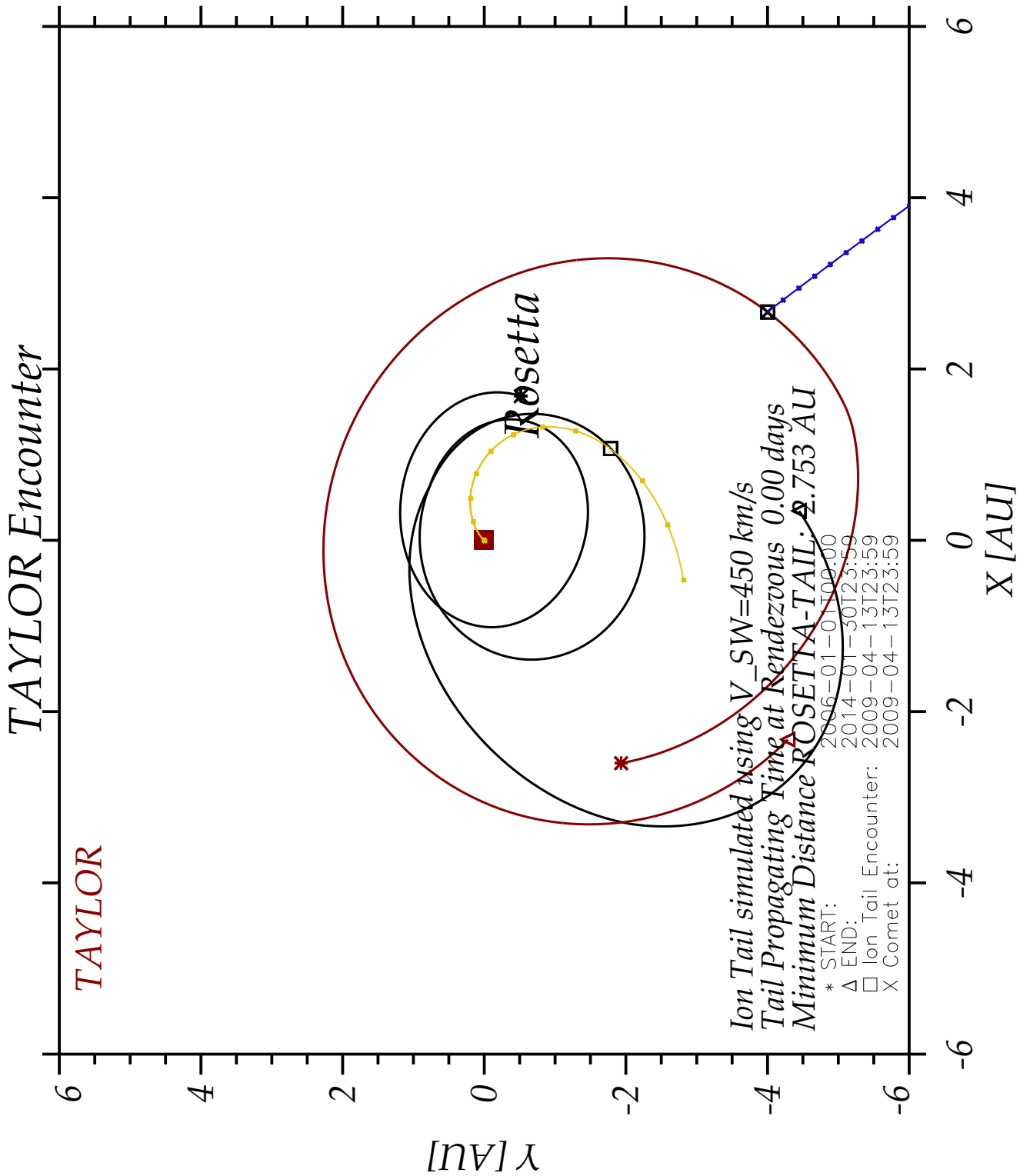


Figure 142: Overview: ROSETTA - TAYLOR

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**74 Comet 70P/KOJIMA**

<b>Comet: 70P/KOJIMA</b>
<b>No Encounter below 0.2000AU</b>



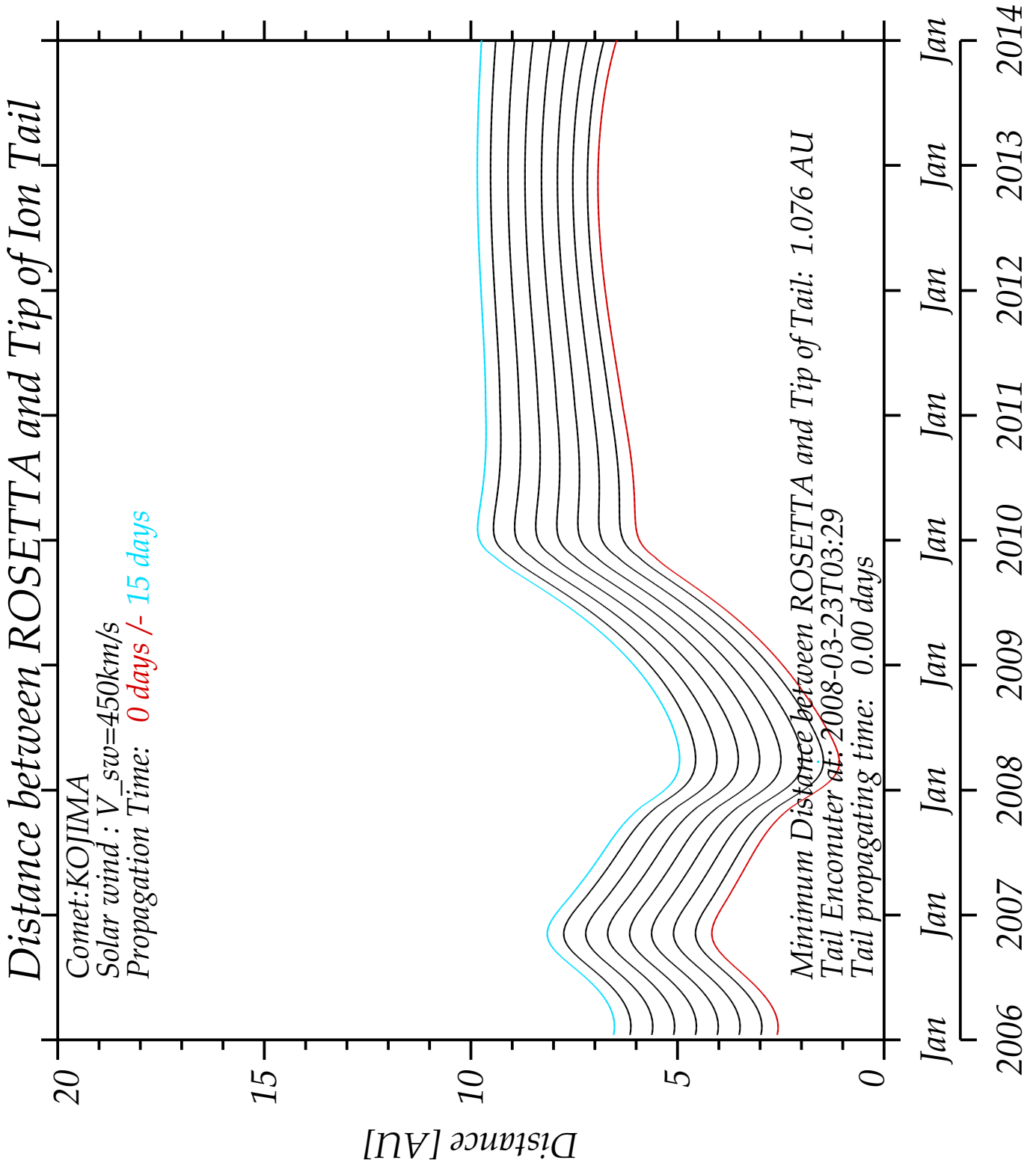


Figure 143: Minimum Distances: ROSETTA - KOJIMA

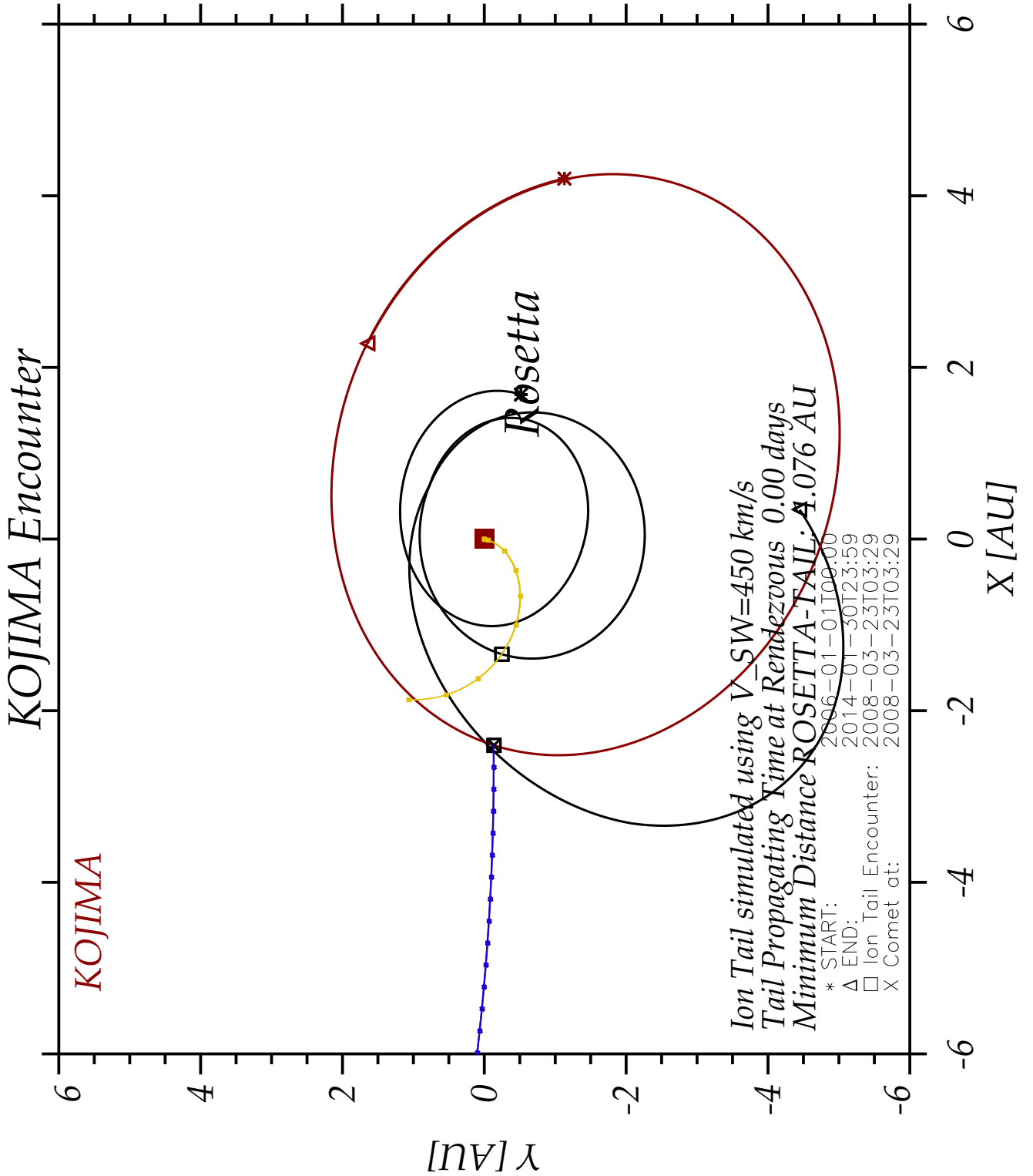


Figure 144: Overview: ROSETTA - KOJIMA

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## 75 Comet 71P/CLARK

<b>Comet:</b>	<b>71P/CLARK</b>				
<b>Date of Encounter:</b>	<b>2011-10-25T15:00</b>				
<b>Minimum Distance</b>					
<b>ROSETTA/Ion Tail:</b>	<b>0.1850</b>				<b>AU</b>
<b>Position of ROSETTA</b>	<b>-3.0846</b>	<b>-3.8070</b>	<b>-0.0647</b>	<b>4.9002</b>	<b>AU,[x,y,z],r</b>
<b>Position of COMET:</b>	<b>-0.8749</b>	<b>-1.3986</b>	<b>0.0079</b>	<b>1.6497</b>	<b>AU,[x,y,z],r</b>
<b>Velocity of ROSETTA</b>	<b>3.79</b>	<b>-8.49</b>	<b>-1.01</b>	<b>9.35</b>	<b>km/s,[vx,vy,vz],v</b>
<b>Velocity of COMET:</b>	<b>25.83</b>	<b>-10.38</b>	<b>-4.60</b>	<b>28.21</b>	<b>km/s,[vx,vy,vz],v</b>
<b>Tail Intersection Angle:</b>	<b>72.9</b>				<b>deg</b>
<b>Velocity of ROSETTA</b>					
<b>normal to Tail:</b>	<b>8.94</b>				<b>km/s</b>
<b>Proagating Time</b>					
<b>of Tail</b>	<b>12.310</b>				<b>days</b>

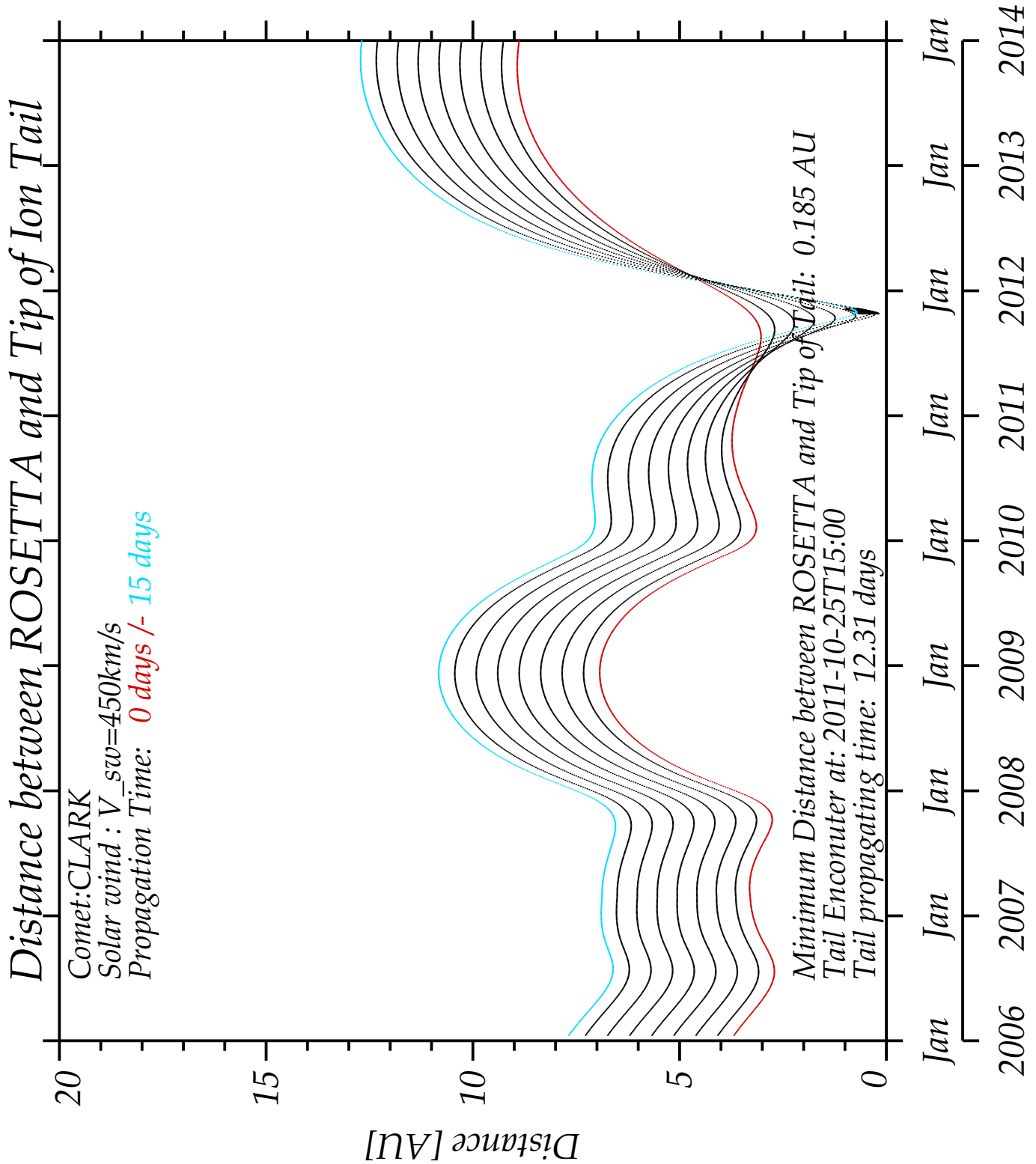


Figure 145: Minimum Distances: ROSETTA - CLARK

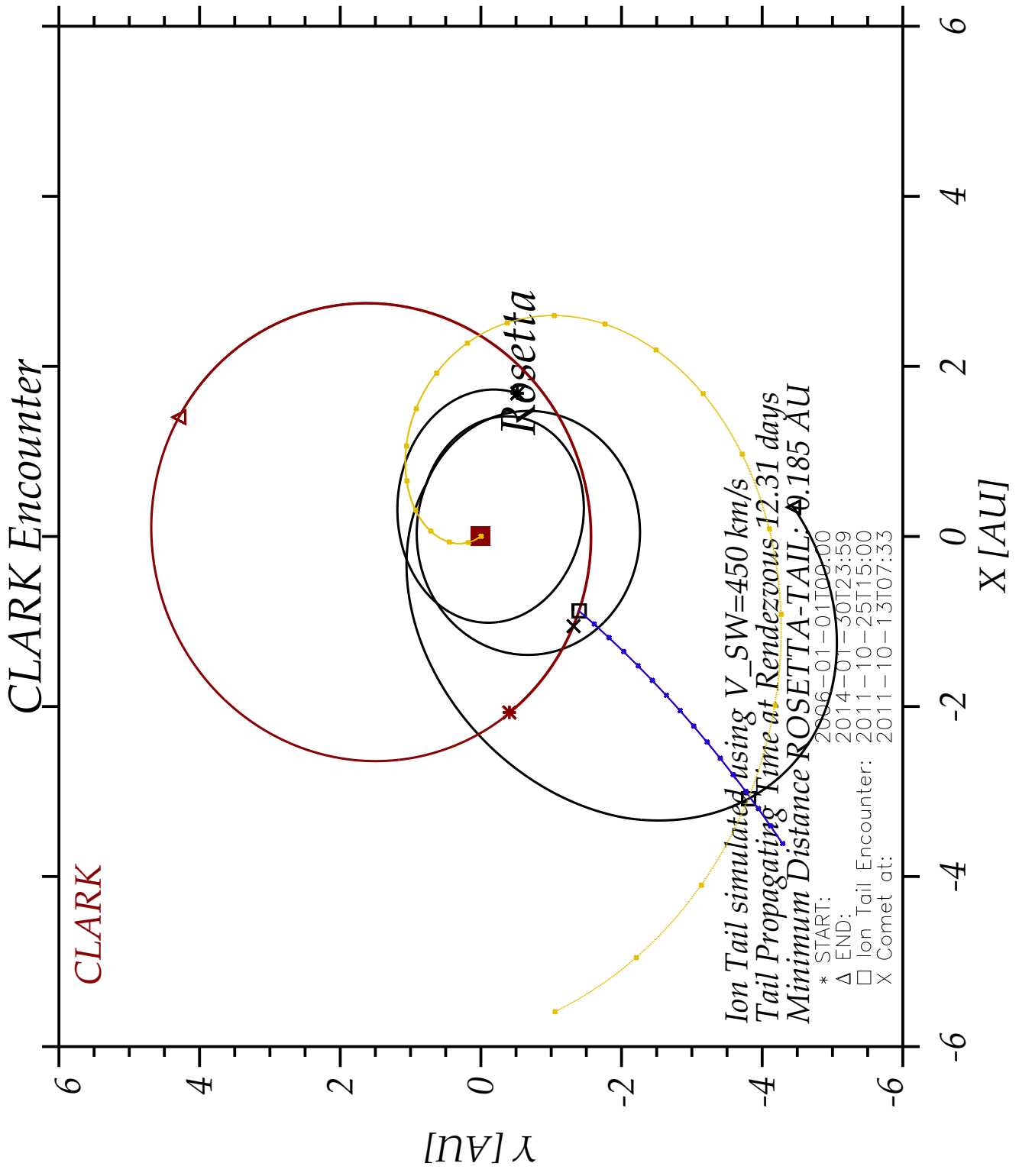


Figure 146: Overview: ROSETTA - CLARK

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## 76 Comet 72P/DENNING-FUJIKAWA

<b>Comet: 72P/DENNING-FUJIKAWA</b>
<b>No Encounter below 0.2000AU</b>

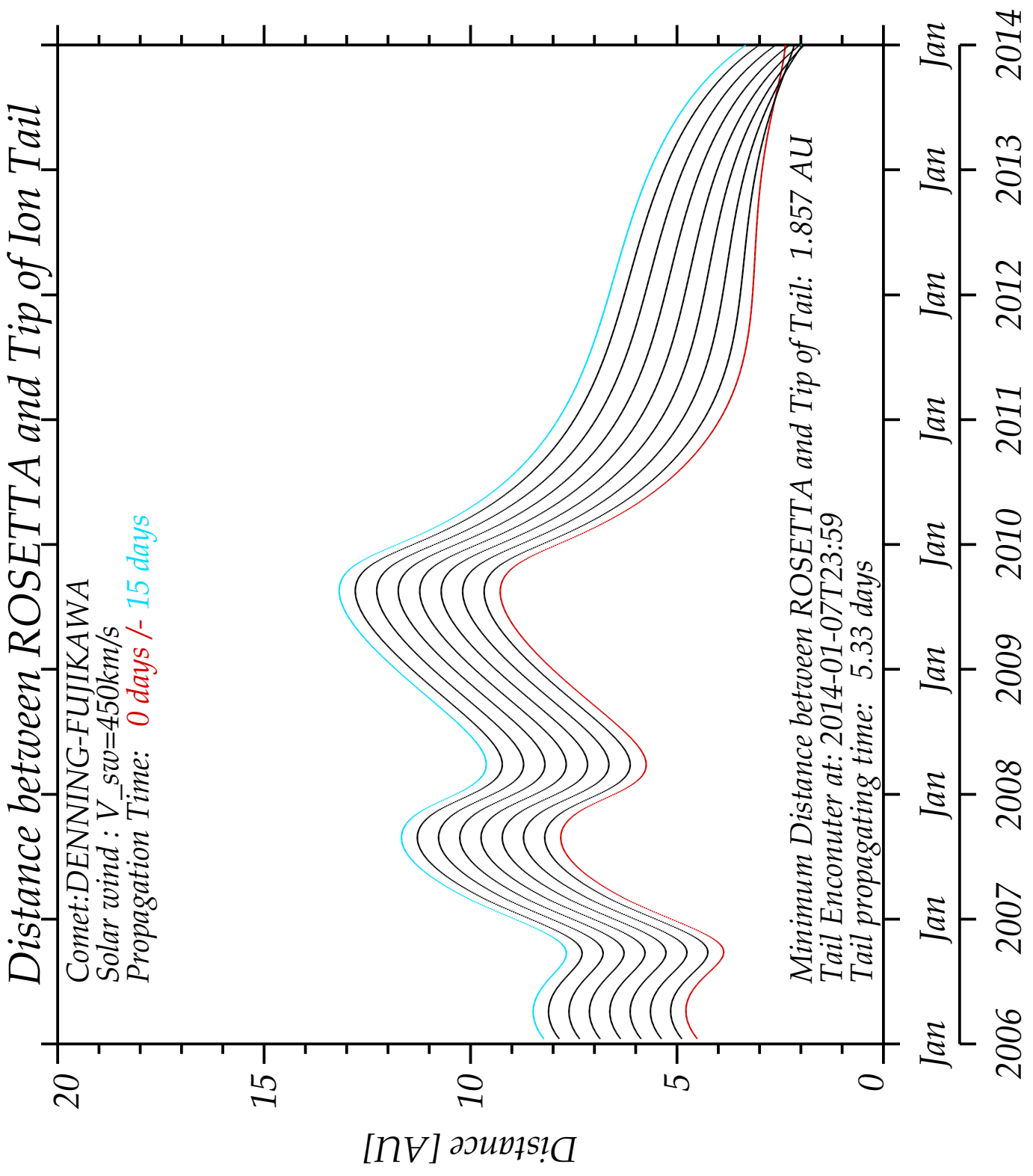


Figure 147: Minimum Distances: ROSETTA - DENNING-FUJIKAWA





<p style="text-align: center;">R O S E T T A</p>	<p>Document: RO-IGEP-TR-0020  Issue: 1  Revision: 2  Date: 2006-10-25  Page: 224</p>
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## 77 Comet 73P/SCHWASSMANN-WACHMANN 3

<p><b>Comet: 73P/SCHWASSMANN-WACHMANN 3</b></p>
<p><b>No Encounter below 0.2000AU</b></p>

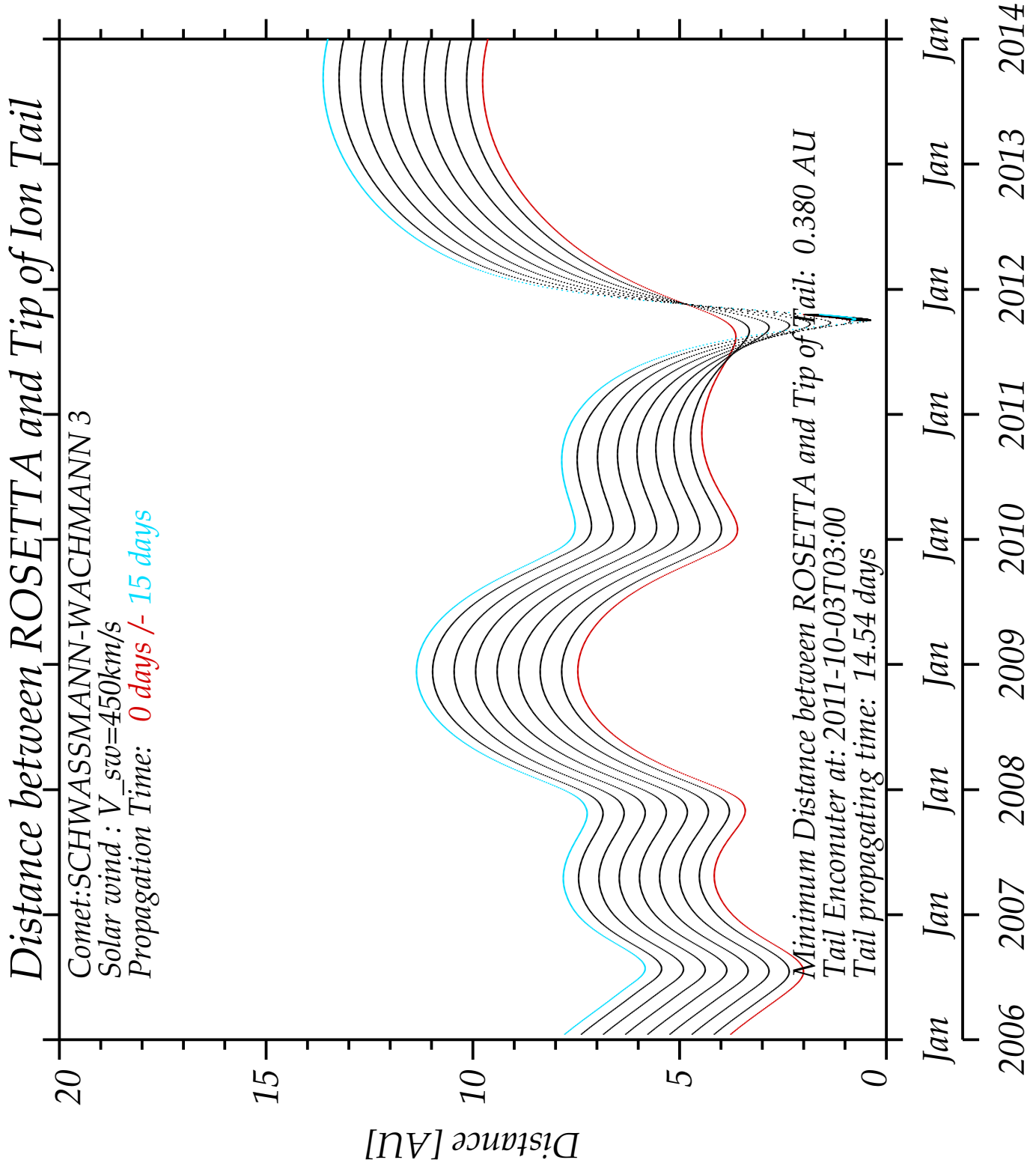


Figure 149: Minimum Distances: ROSETTA - SCHWASSMANN-WACHMANN 3

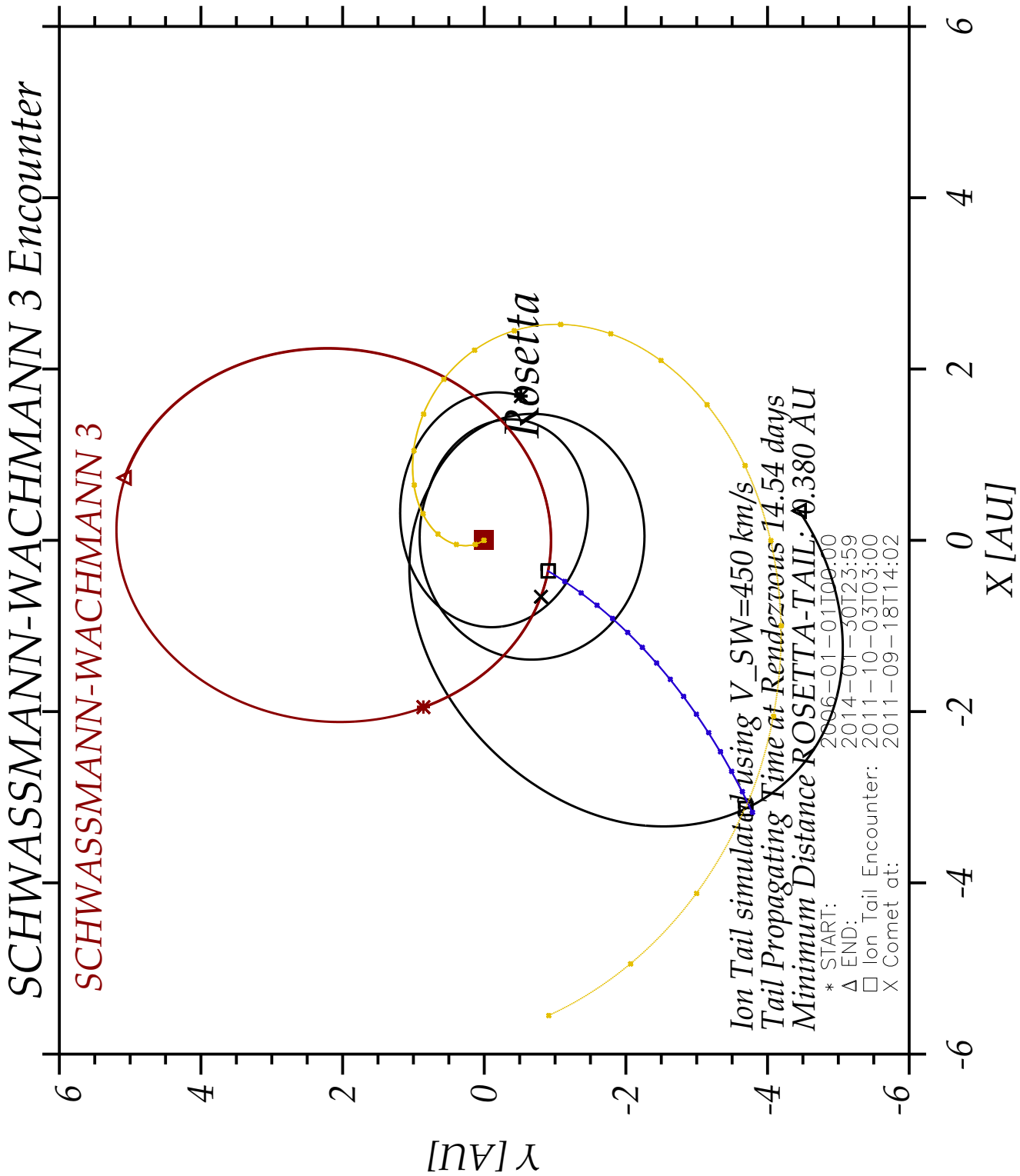


Figure 150: Overview: ROSETTA - SCHWASSMANN-WACHMANN 3

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## 78 Comet 74P/SMIRNOVA-CHERNYKH

<b>Comet: 74P/SMIRNOVA-CHERNYKH</b>
<b>No Encounter below 0.2000AU</b>

<h1 style="margin: 0;">ROSETTA</h1>	Document: RO-IGEP-TR-0020 Issue: 1 Revision: 2
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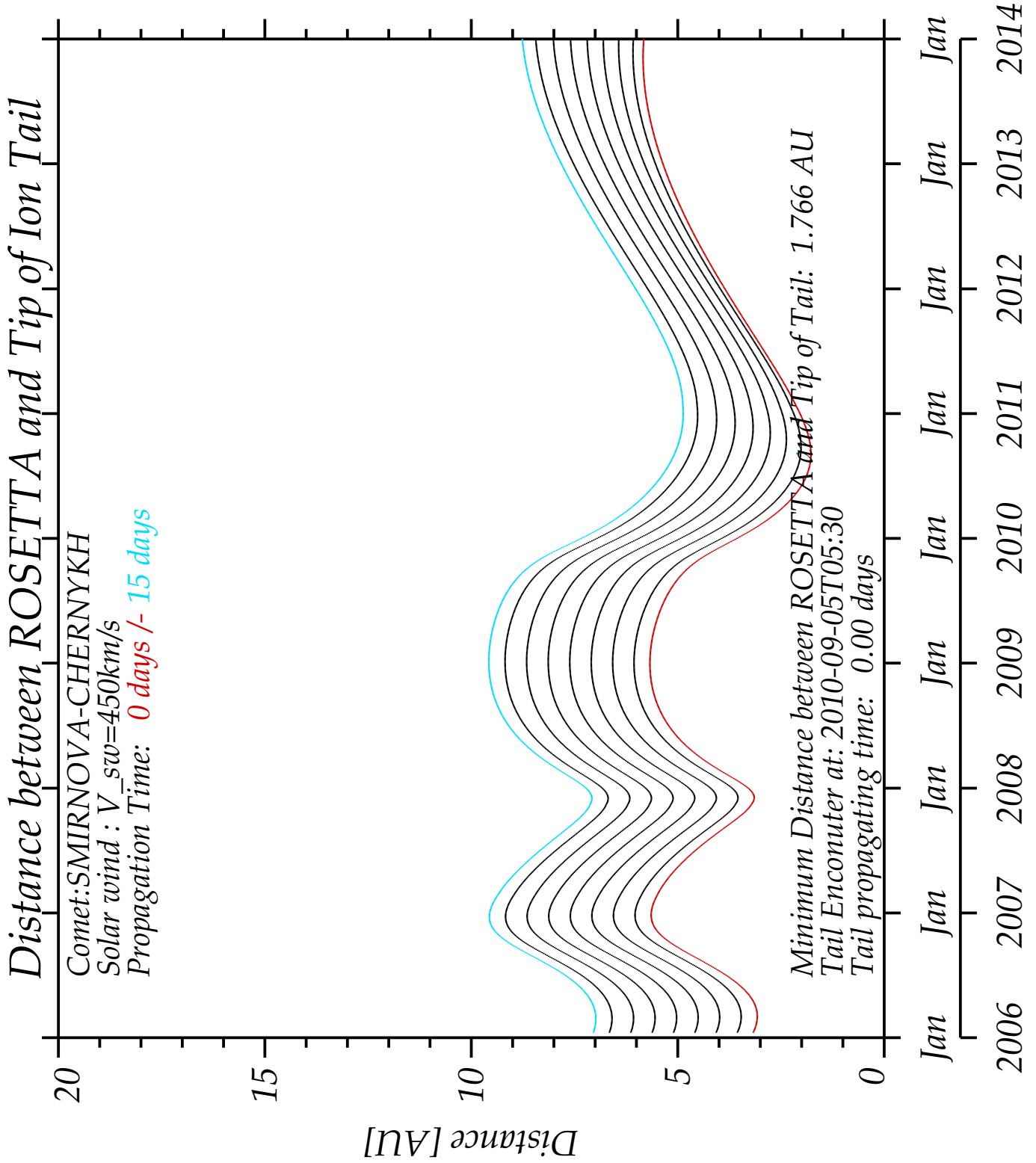


Figure 151: Minimum Distances: ROSETTA - SMIRNOVA-CHERNYKH

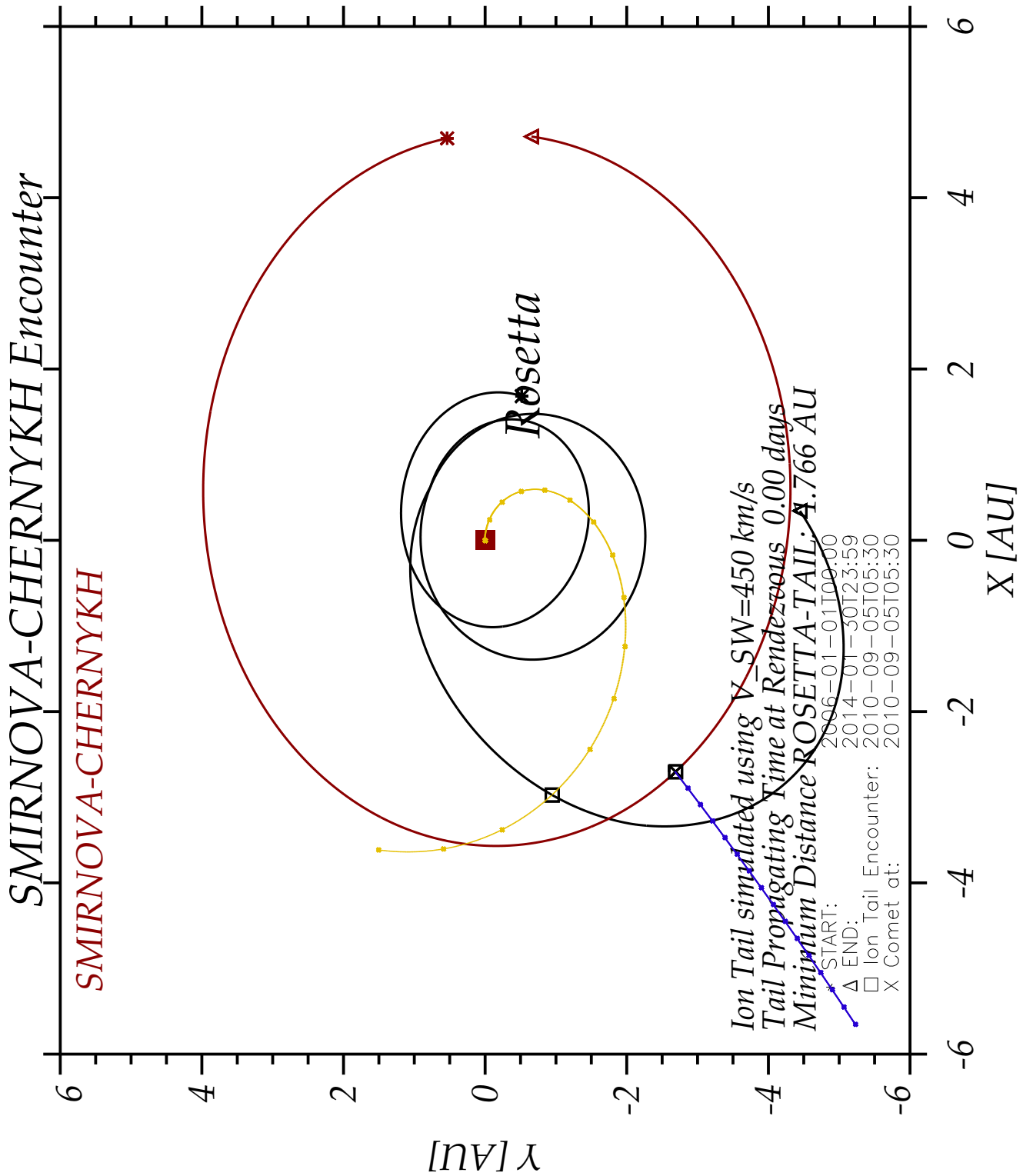


Figure 152: Overview: ROSETTA - SMIRNOVA-CHERNYKH

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## **79 Comet 75D/KOHOUTEK**

<b>Comet: 75D/KOHOUTEK</b>
<b>No Encounter below 0.2000AU</b>

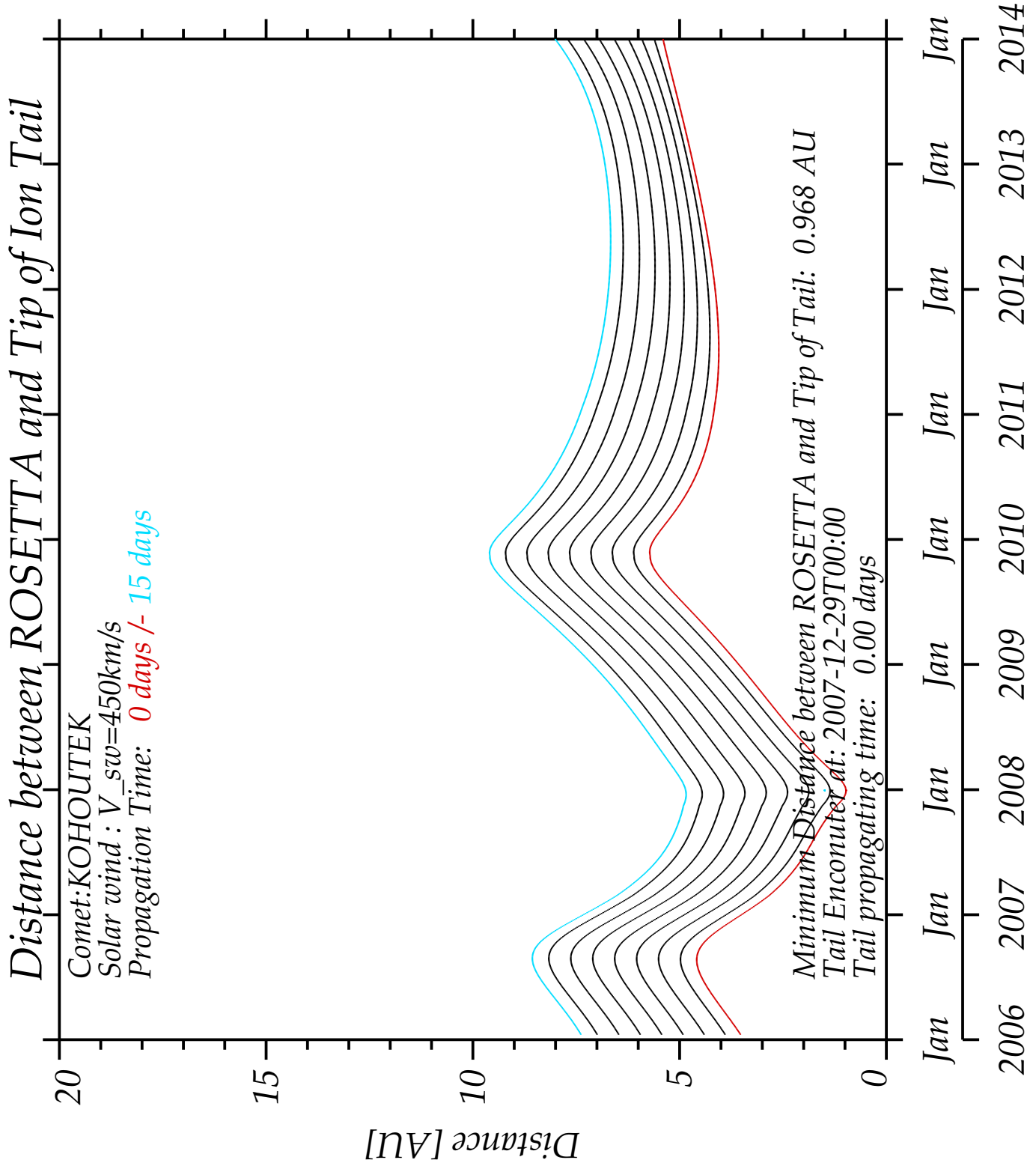


Figure 153: Minimum Distances: ROSETTA - KOHOUEK



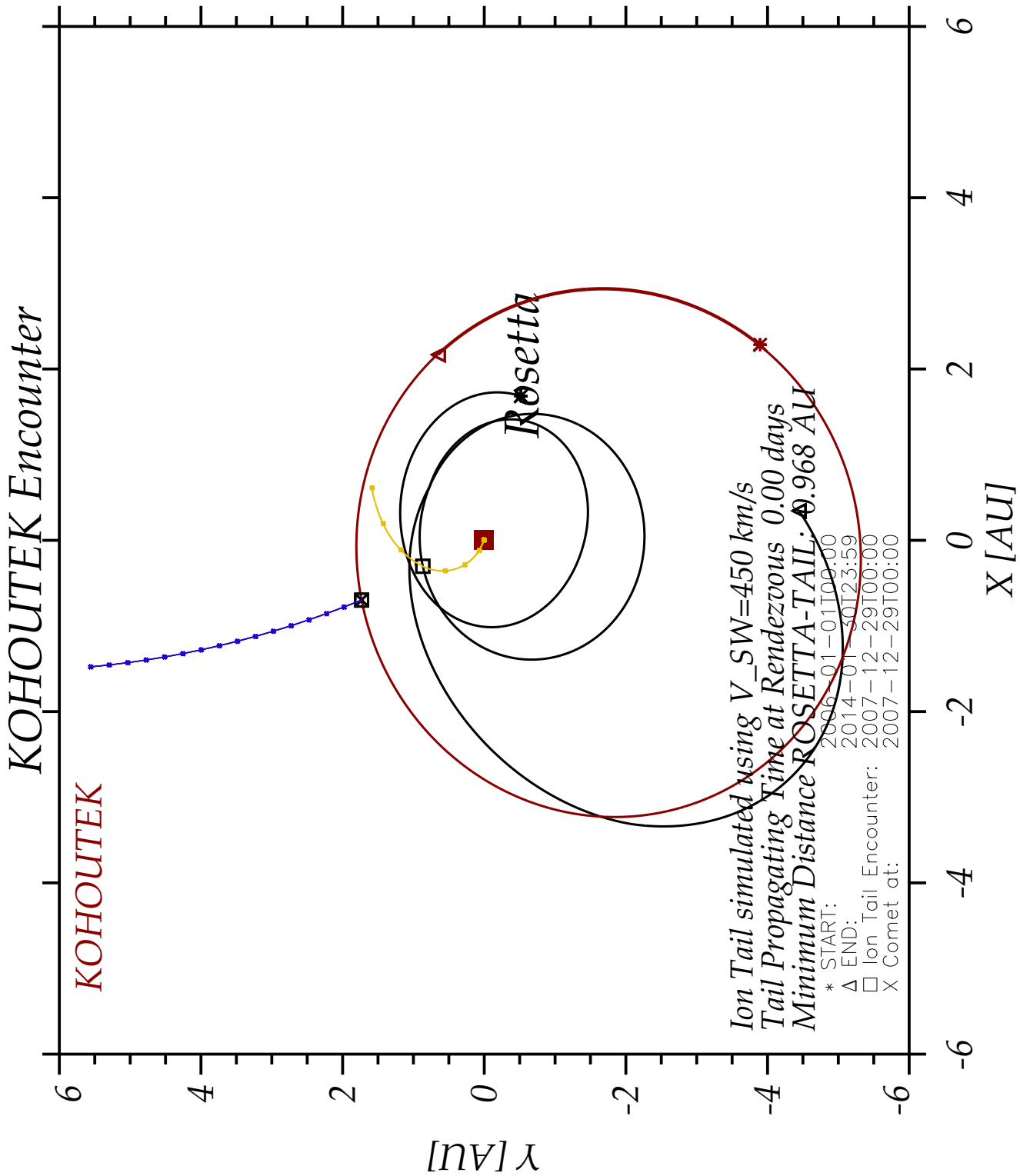


Figure 154: Overview: ROSETTA - KOHOUTEK

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## 80 Comet 76P/WEST-KOHOUTEK-IKEMURA

<b>Comet: 76P/WEST-KOHOUTEK-IKEMURA</b>
<b>No Encounter below 0.2000AU</b>

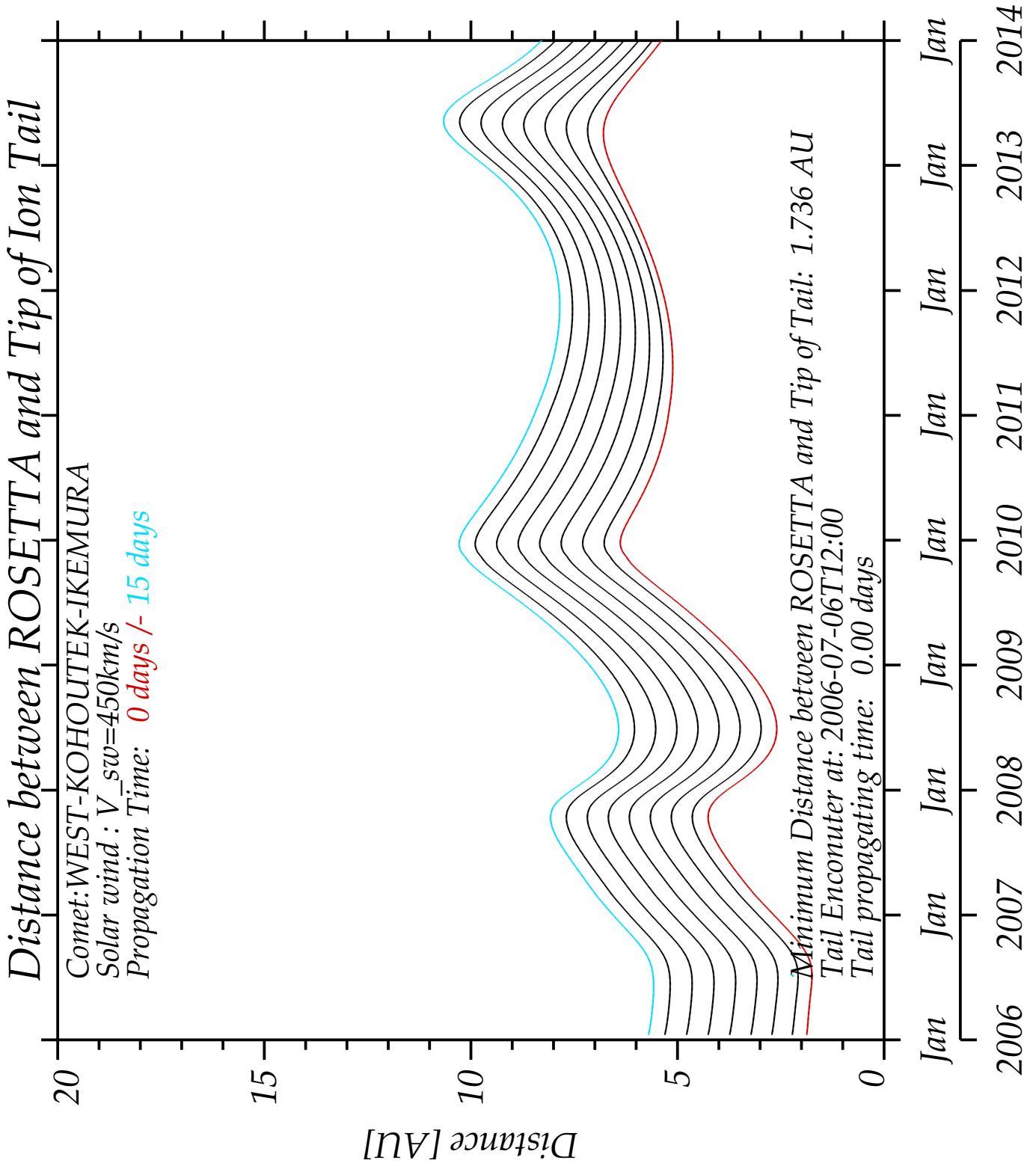


Figure 155: Minimum Distances: ROSETTA - WEST-KOHOUTEK-IKEMURA

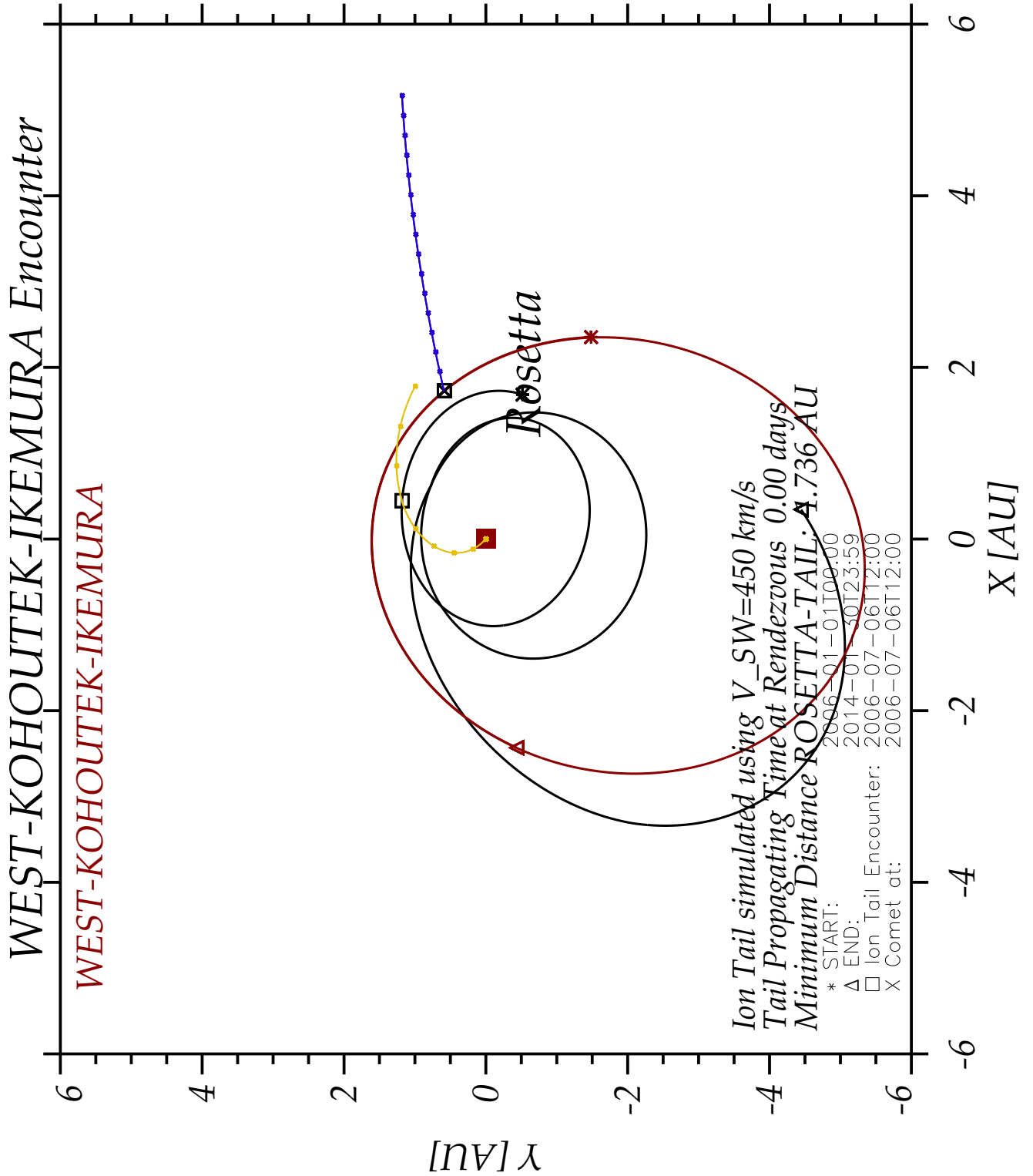


Figure 156: Overview: ROSETTA - WEST-KOHOUTEK-IKEMURA

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## 81 Comet 77P/LONGMORE

<b>Comet: 77P/LONGMORE</b>
<b>No Encounter below 0.2000AU</b>

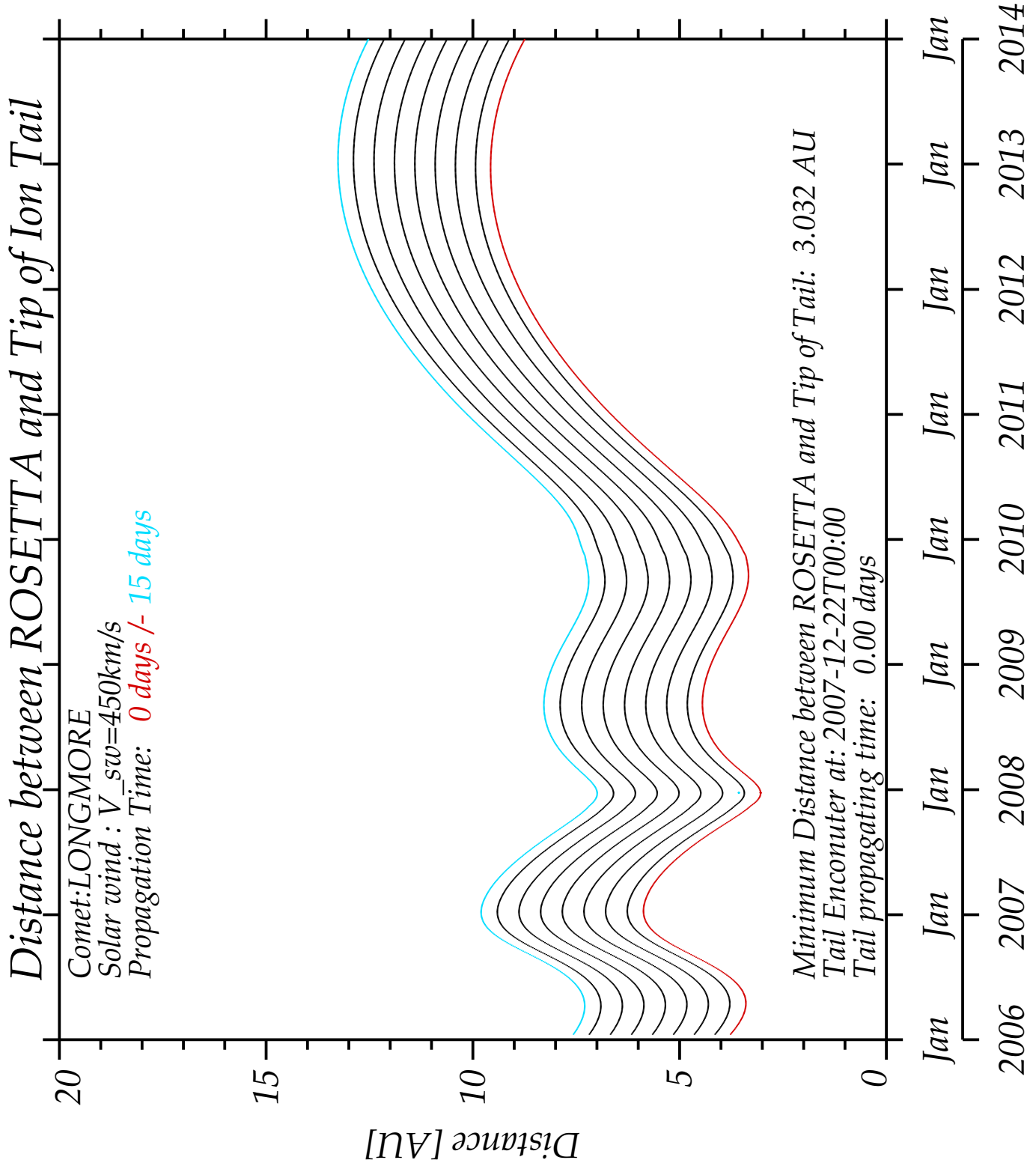


Figure 157: Minimum Distances: ROSETTA - LONGMORE

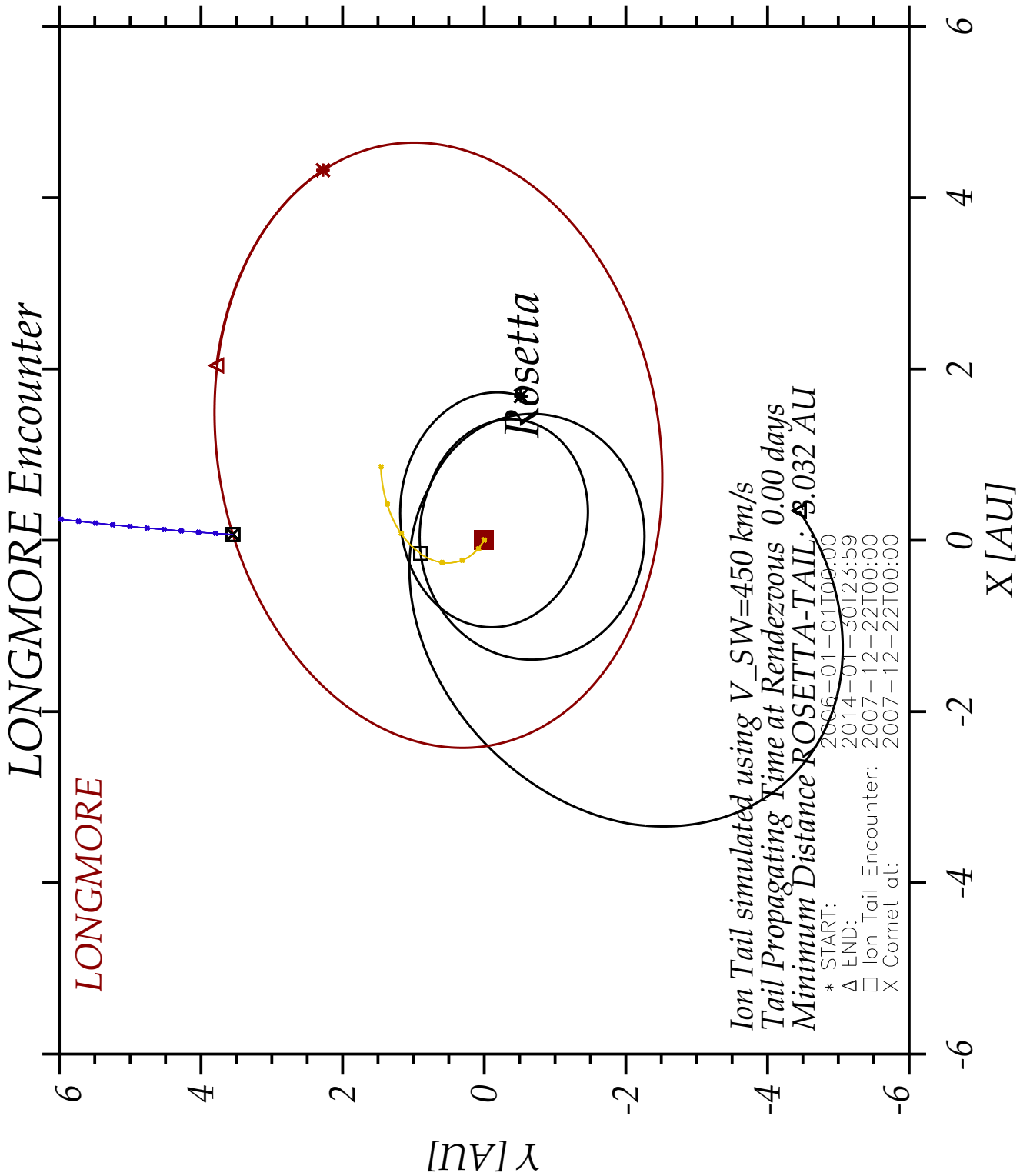


Figure 158: Overview: ROSETTA - LONGMORE

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## **82 Comet 78P/GEHRELS 2**

<b>Comet: 78P/GEHRELS 2</b>
<b>No Encounter below 0.2000AU</b>



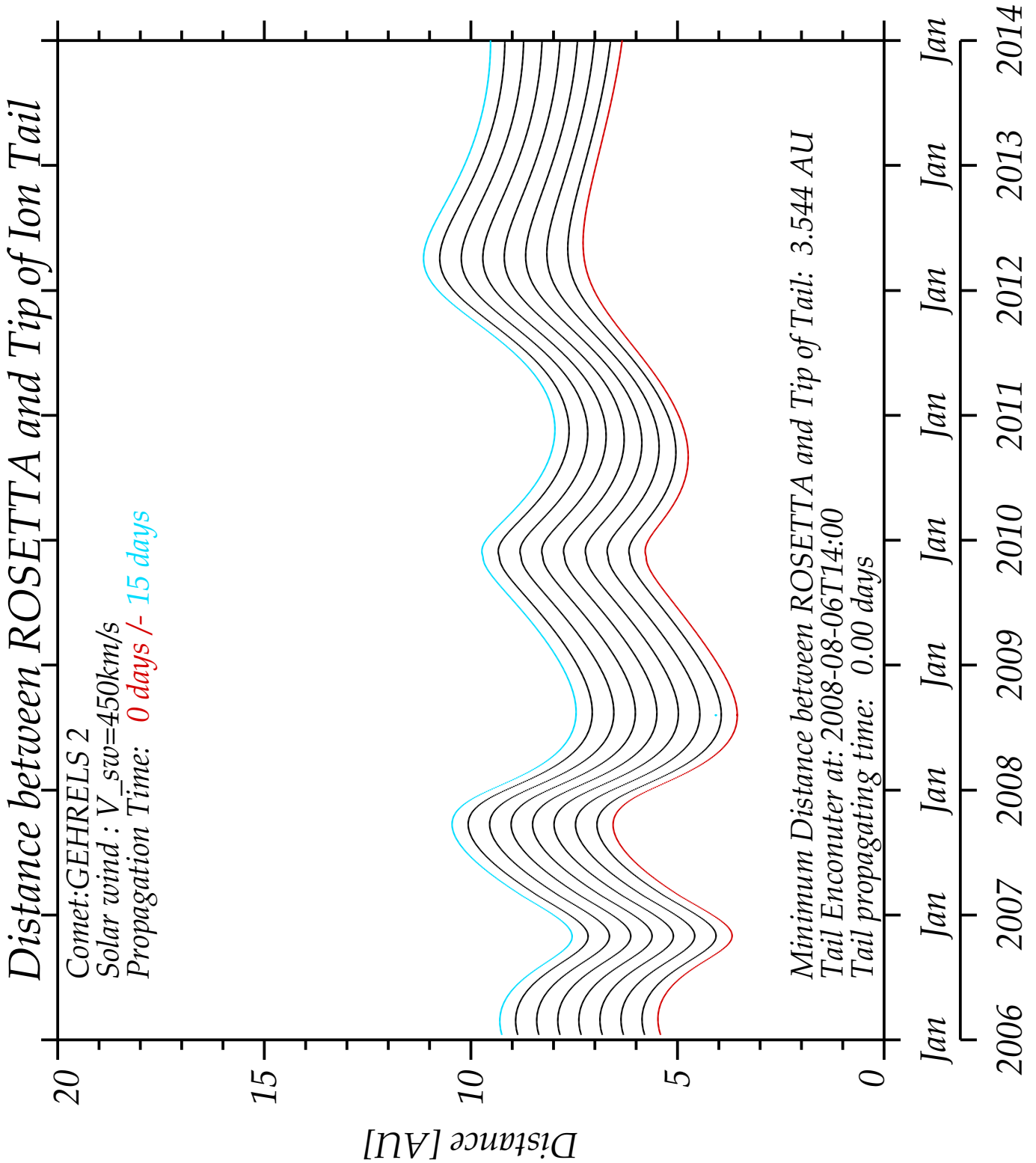


Figure 159: Minimum Distances: ROSETTA - GEHRELS 2

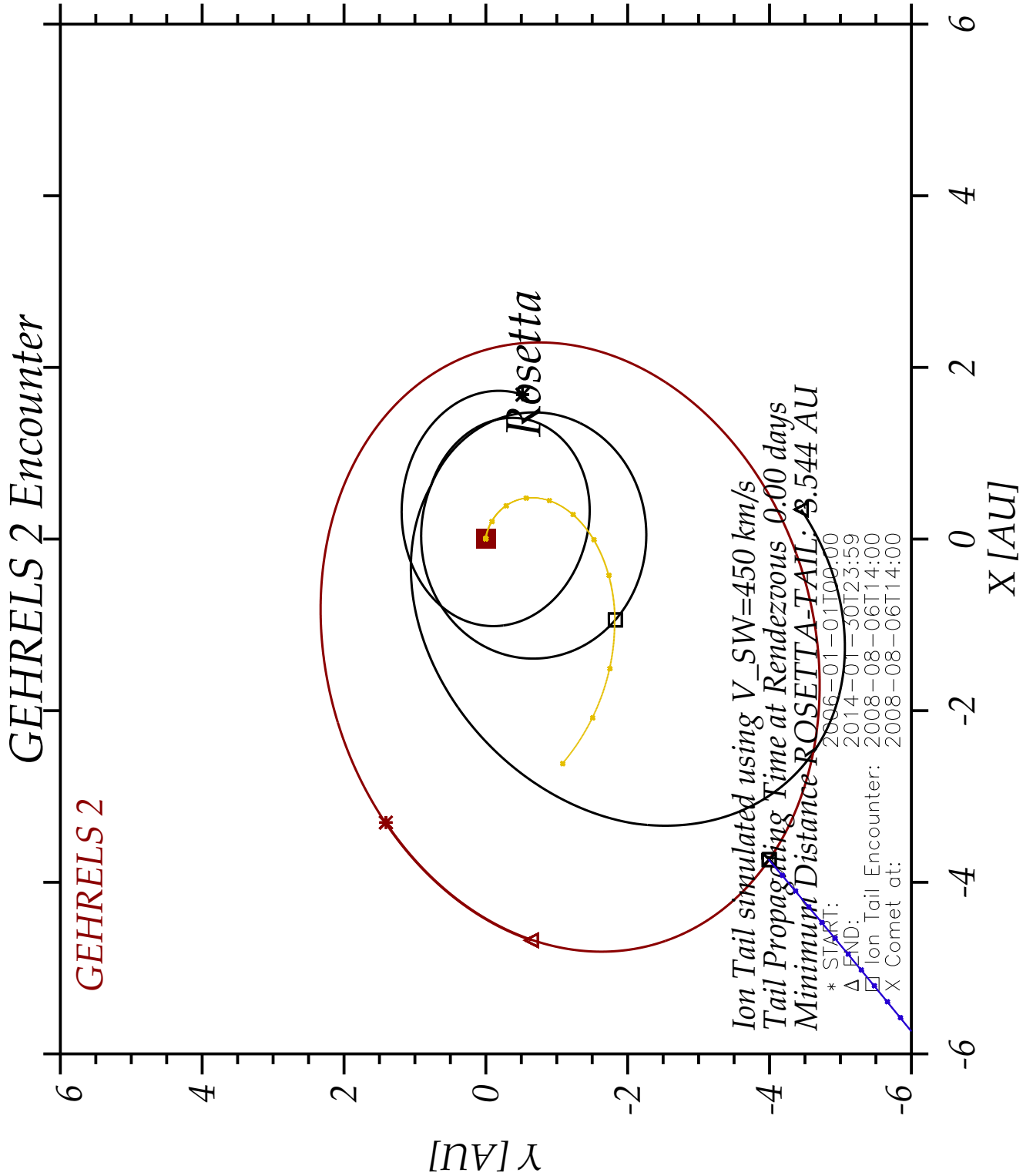


Figure 160: Overview: ROSETTA - GEHRELS 2

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### 83 Comet 79P/DU TOIT-HARTLEY

<b>Comet:</b>	<b>79P/DU TOIT-HARTLEY</b>				
<b>Date of Encounter:</b>	<b>2008-07-08T09:00</b>				
<b>Minimum Distance</b>					
<b>ROSETTA/Ion Tail:</b>	<b>0.0780</b>				<b>AU</b>
<b>Position of ROSETTA</b>	<b>-1.1299</b>	<b>-1.5865</b>	<b>-0.0164</b>	<b>1.9478</b>	<b>AU,[x,y,z],r</b>
<b>Position of COMET:</b>	<b>-0.7285</b>	<b>-1.1080</b>	<b>-0.0634</b>	<b>1.3275</b>	<b>AU,[x,y,z],r</b>
<b>Velocity of ROSETTA</b>	<b>10.06</b>	<b>-15.77</b>	<b>-2.40</b>	<b>18.86</b>	<b>km/s,[vx,vy,vz],v</b>
<b>Velocity of COMET:</b>	<b>22.31</b>	<b>-23.48</b>	<b>0.16</b>	<b>32.39</b>	<b>km/s,[vx,vy,vz],v</b>
<b>Tail Intersection Angle:</b>	<b>73.6</b>				<b>deg</b>
<b>Velocity of ROSETTA</b>					
<b>normal to Tail:</b>	<b>18.10</b>				<b>km/s</b>
<b>Progagting Time</b>					
<b>of Tail</b>	<b>2.440</b>				<b>days</b>

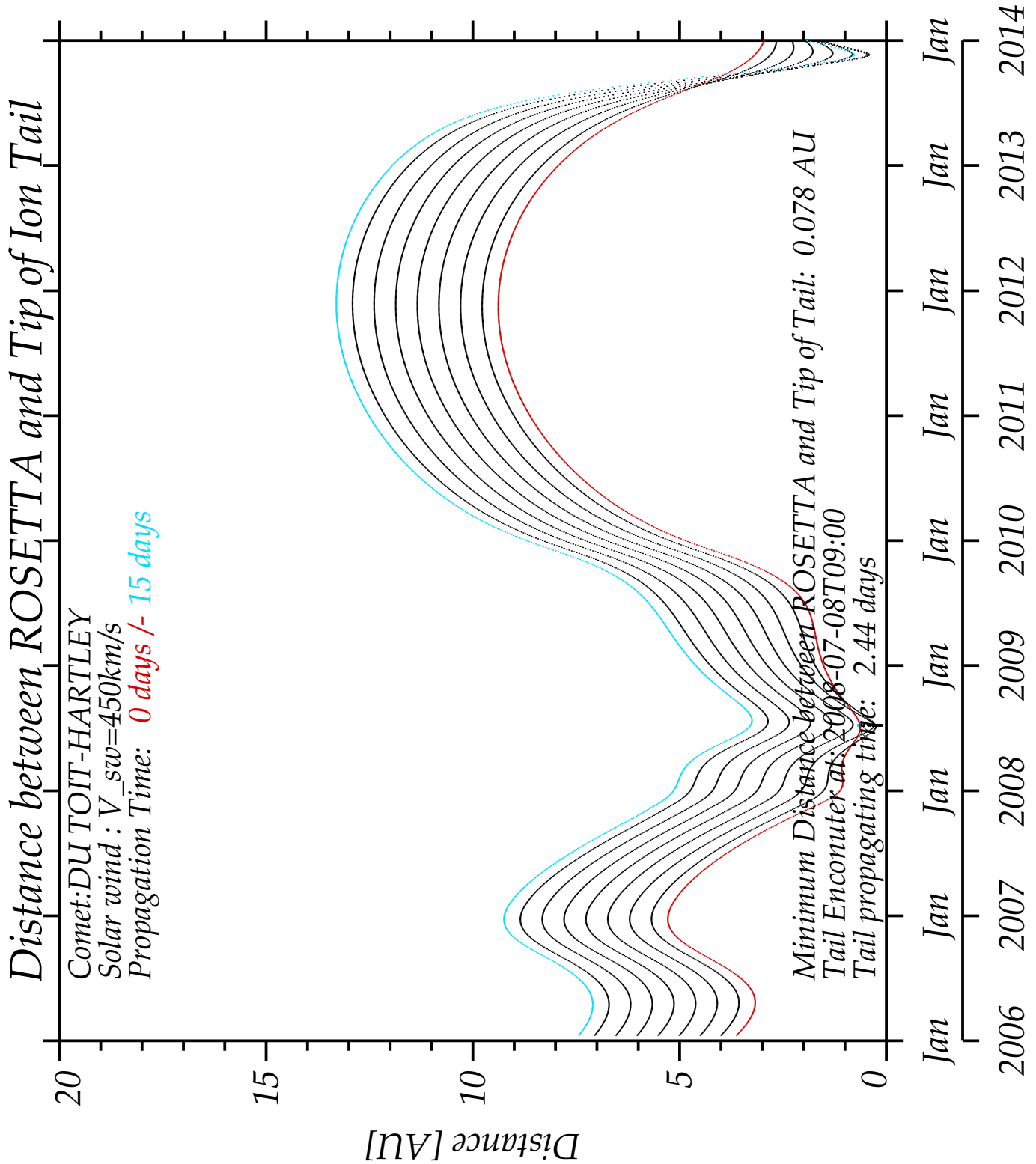


Figure 161: Minimum Distances: ROSETTA - DU TOIT-HARTLEY

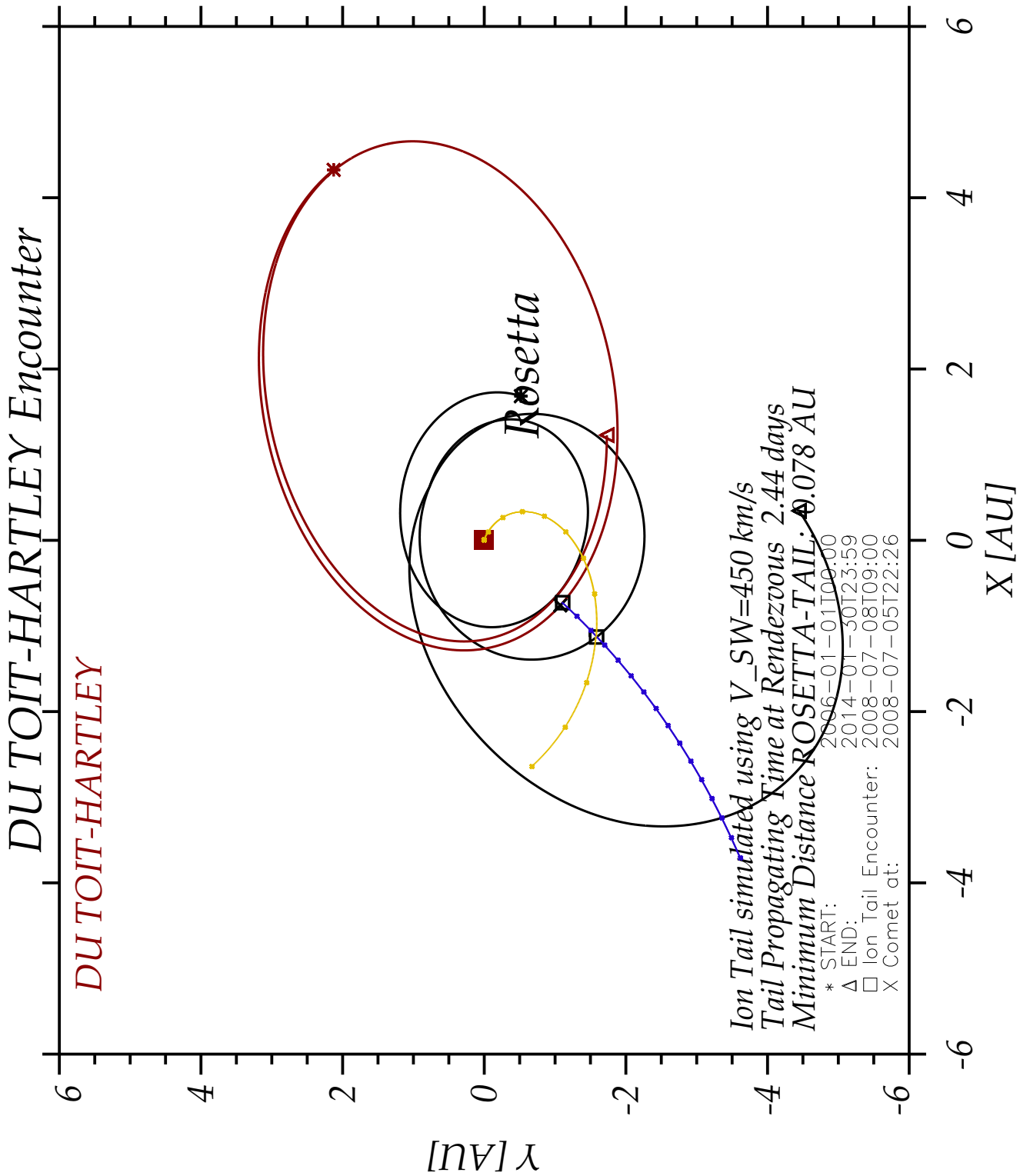


Figure 162: Overview: ROSETTA - DU TOIT-HARTLEY

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## **84 Comet 80P/PETERS-HARTLEY**

<b>Comet: 80P/PETERS-HARTLEY</b>
<b>No Encounter below 0.2000AU</b>

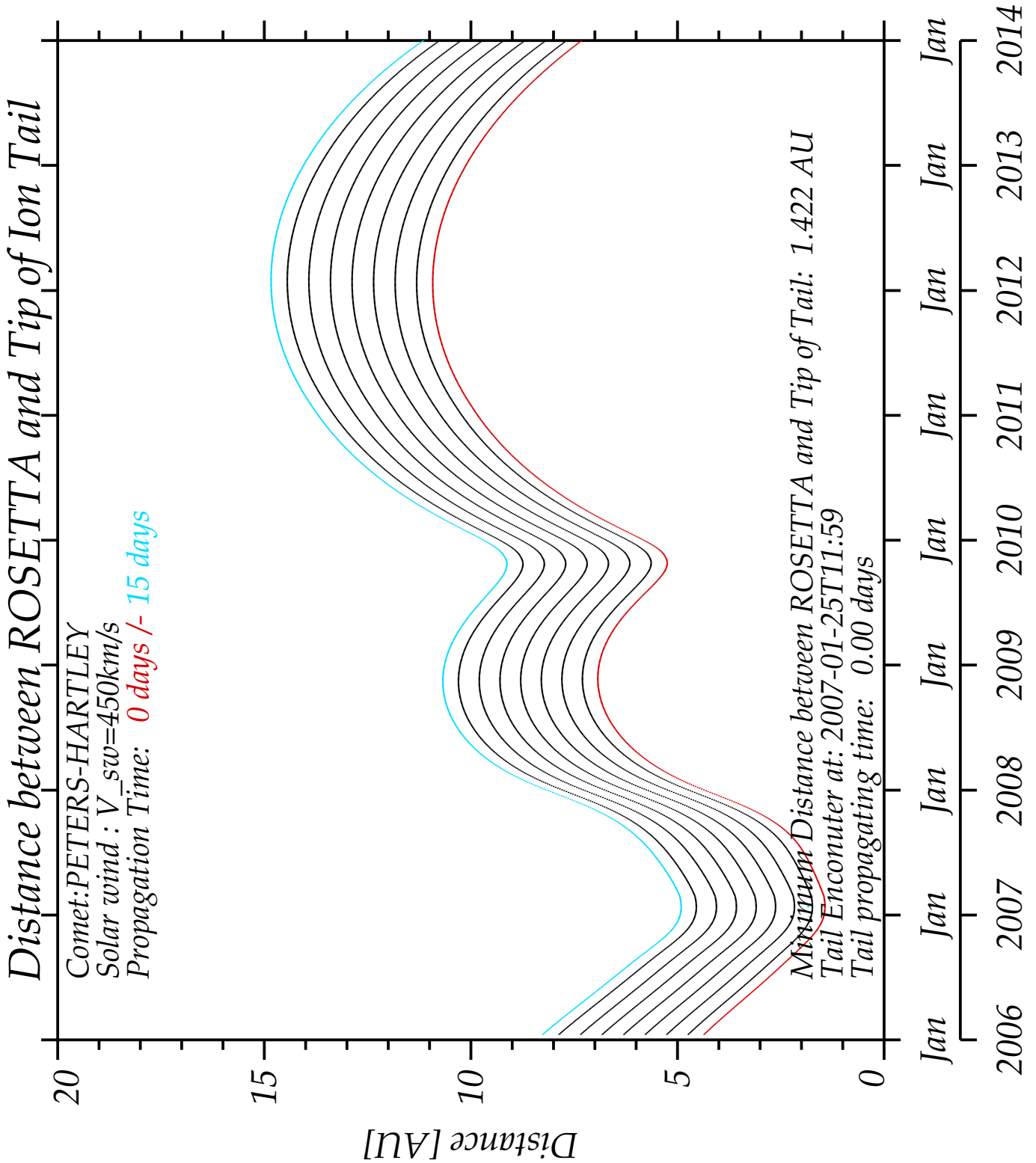


Figure 163: Minimum Distances: ROSETTA - PETERS-HARTLEY

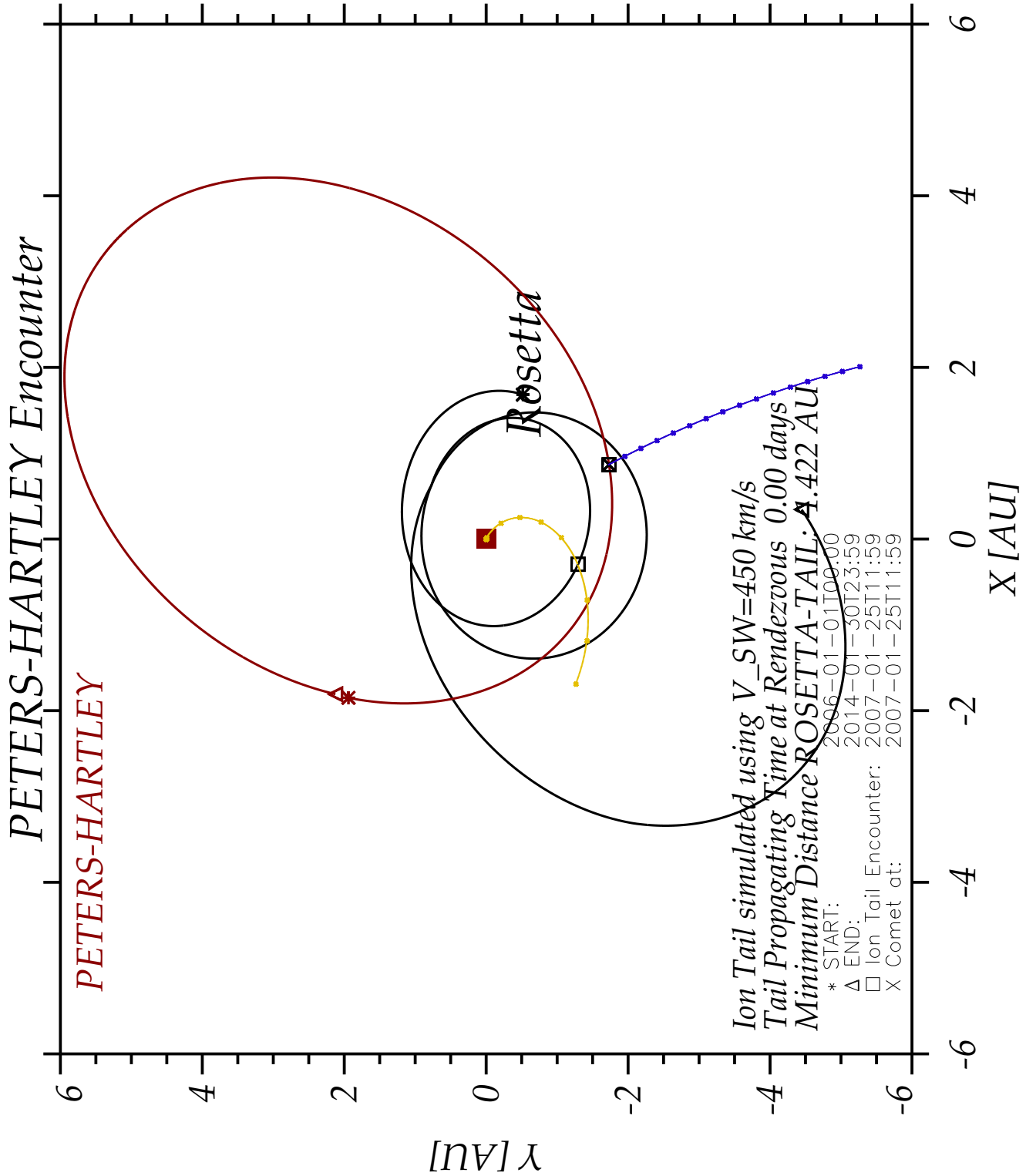


Figure 164: Overview: ROSETTA - PETERS-HARTLEY



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## **85 Comet 81P/WILD 2**

<b>Comet: 81P/WILD 2</b>
<b>No Encounter below 0.2000AU</b>

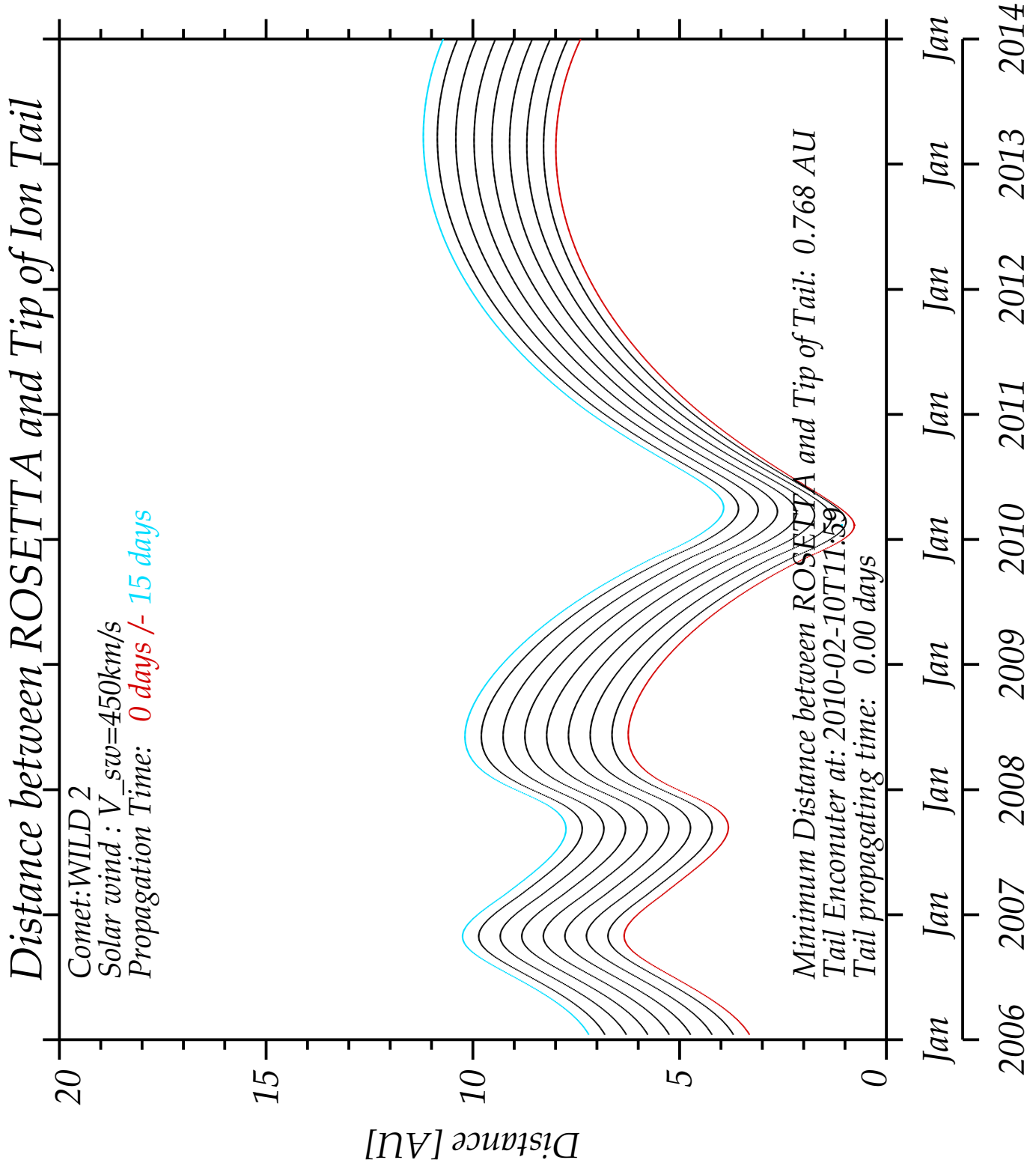


Figure 165: Minimum Distances: ROSETTA - WILD 2

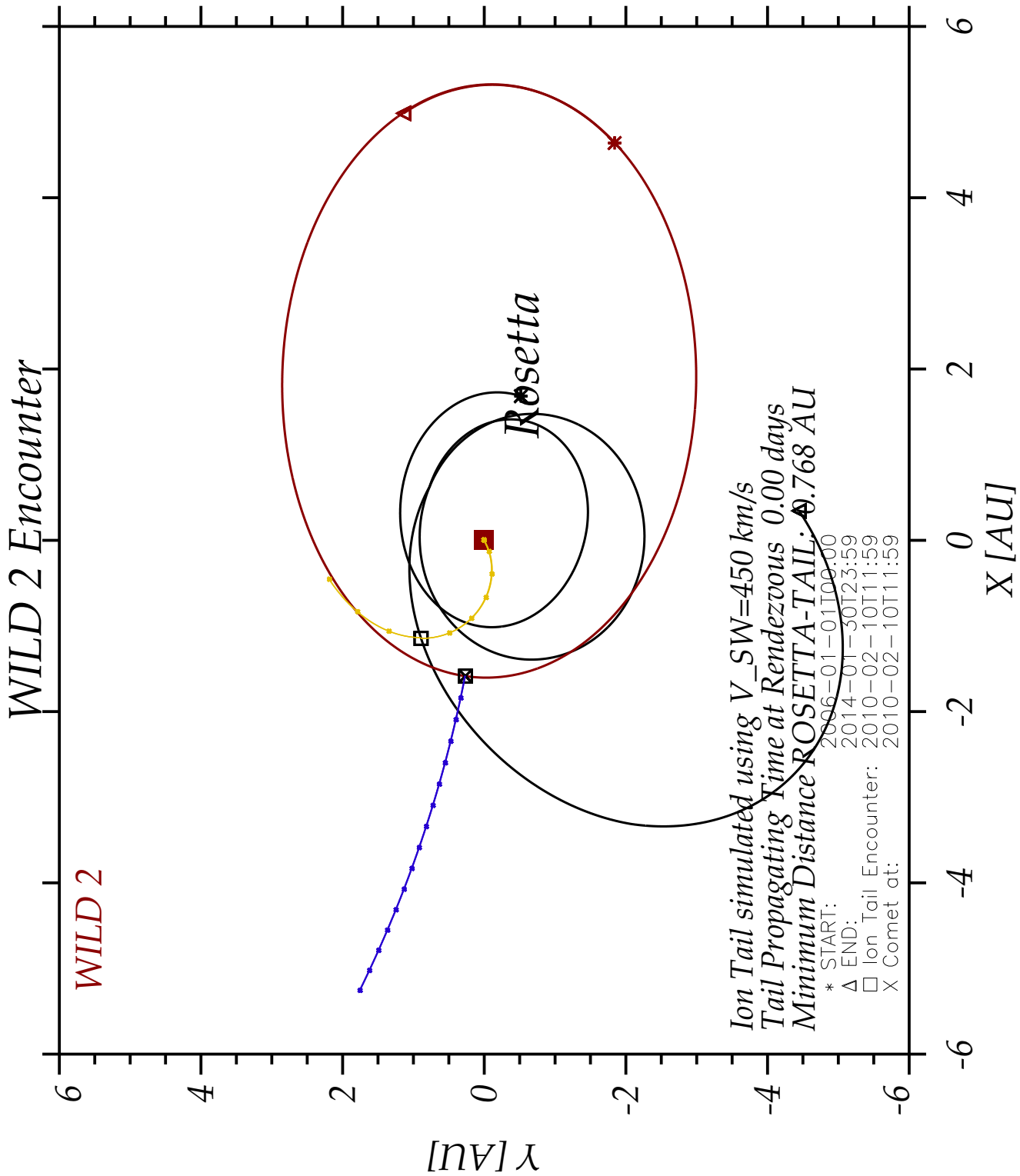


Figure 166: Overview: ROSETTA - WILD 2

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## **86 Comet 82P/GEHRELS 3**

<b>Comet: 82P/GEHRELS 3</b>
<b>No Encounter below 0.2000AU</b>

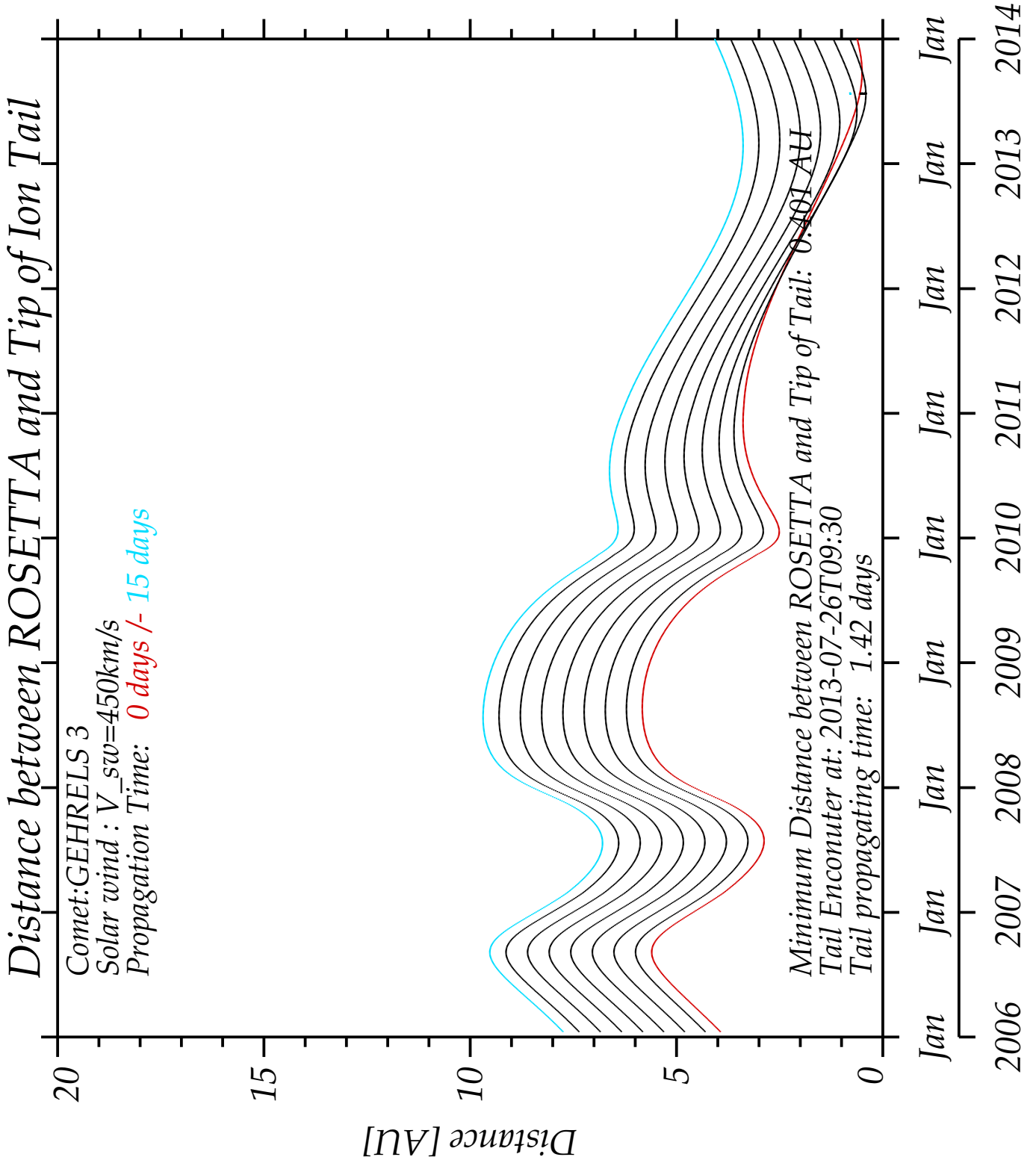


Figure 167: Minimum Distances: ROSETTA - GEHRELS 3

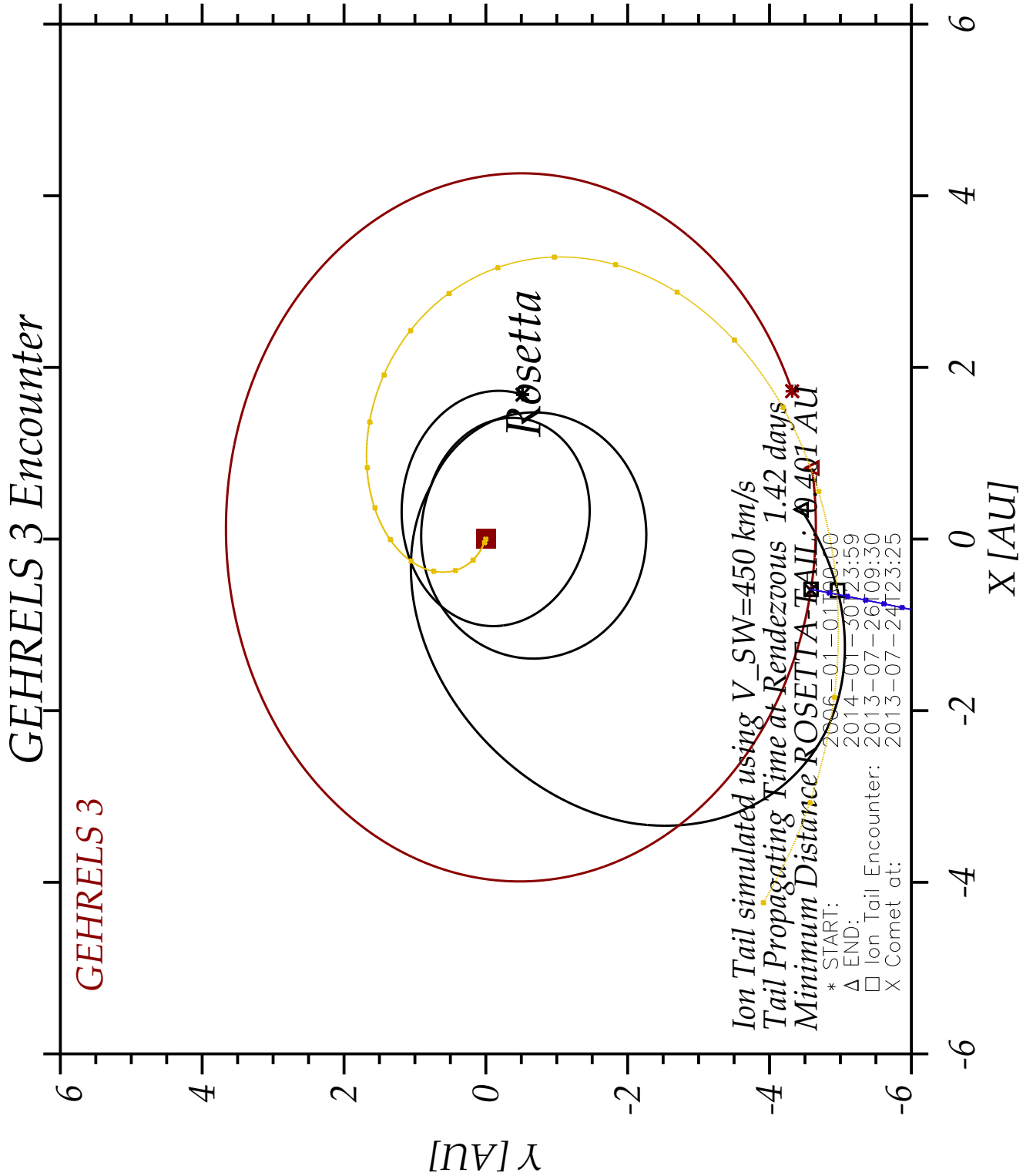


Figure 168: Overview: ROSETTA - GEHRELS 3

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## **87 Comet 83P/RUSSELL 1**

<b>Comet: 83P/RUSSELL 1</b>
<b>No Encounter below 0.2000AU</b>

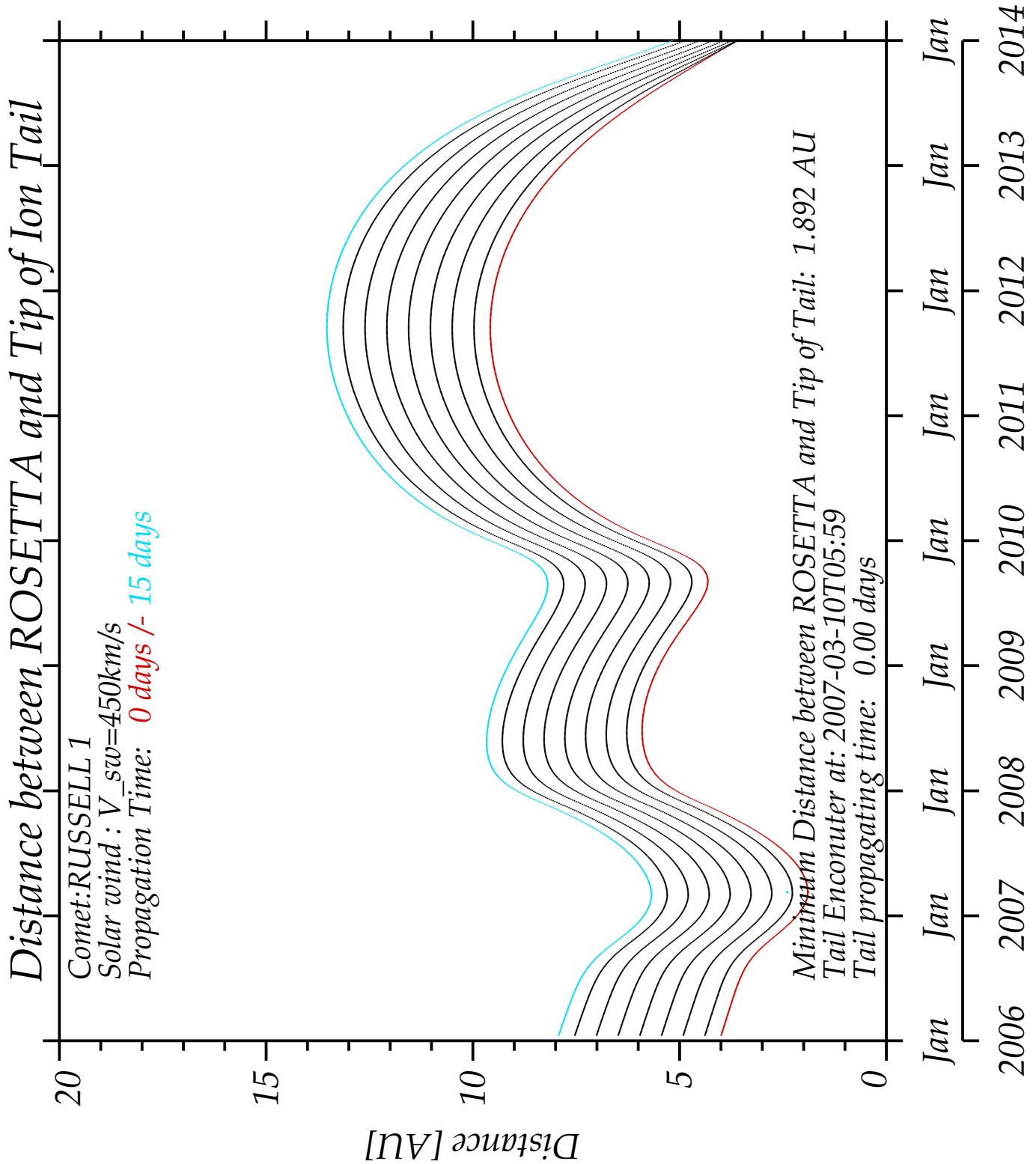


Figure 169: Minimum Distances: ROSETTA - RUSSELL 1



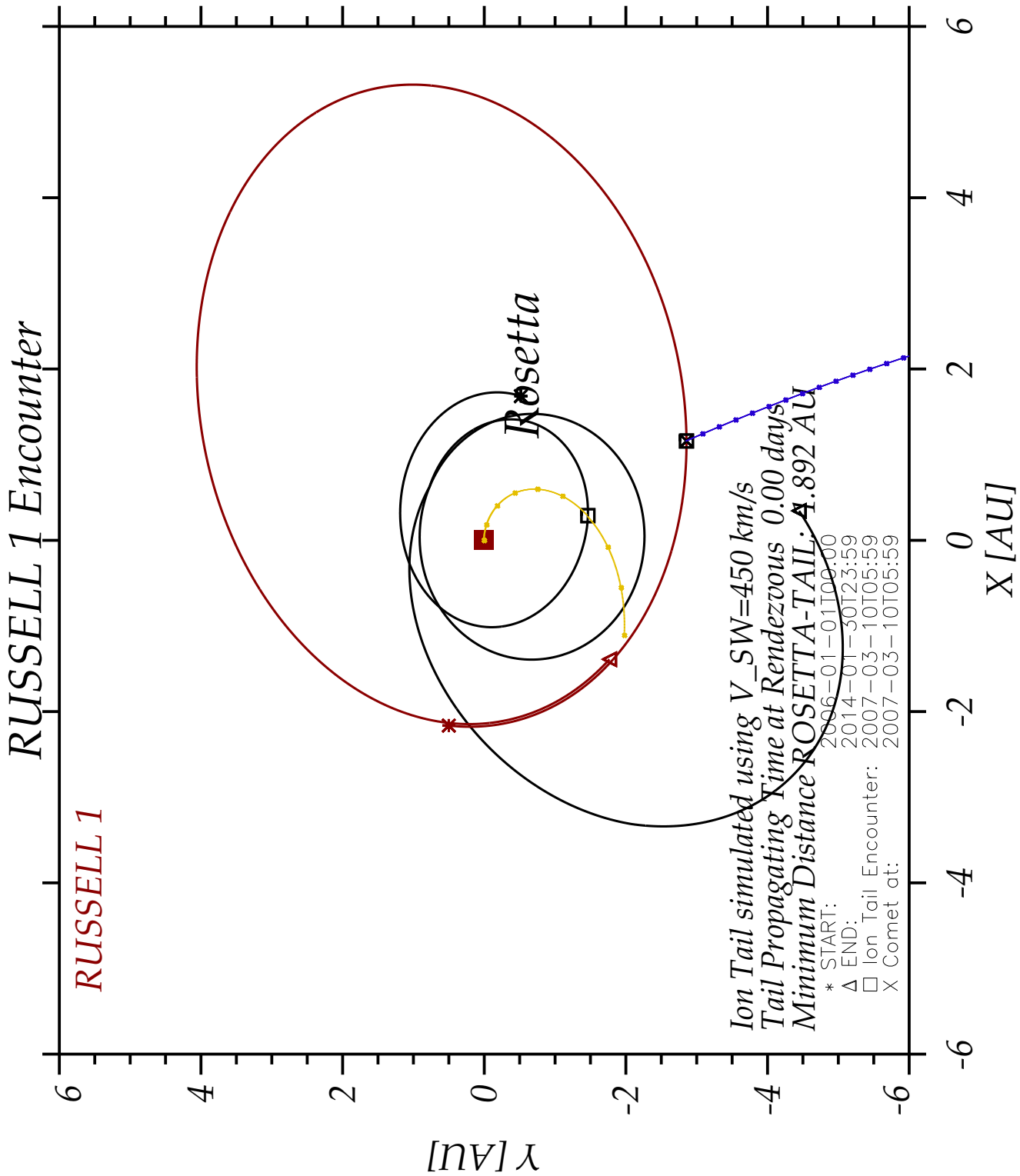


Figure 170: Overview: ROSETTA - RUSSELL 1

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## 88 Comet 84P/GICLAS

<b>Comet: 84P/GICLAS</b>
<b>No Encounter below 0.2000AU</b>

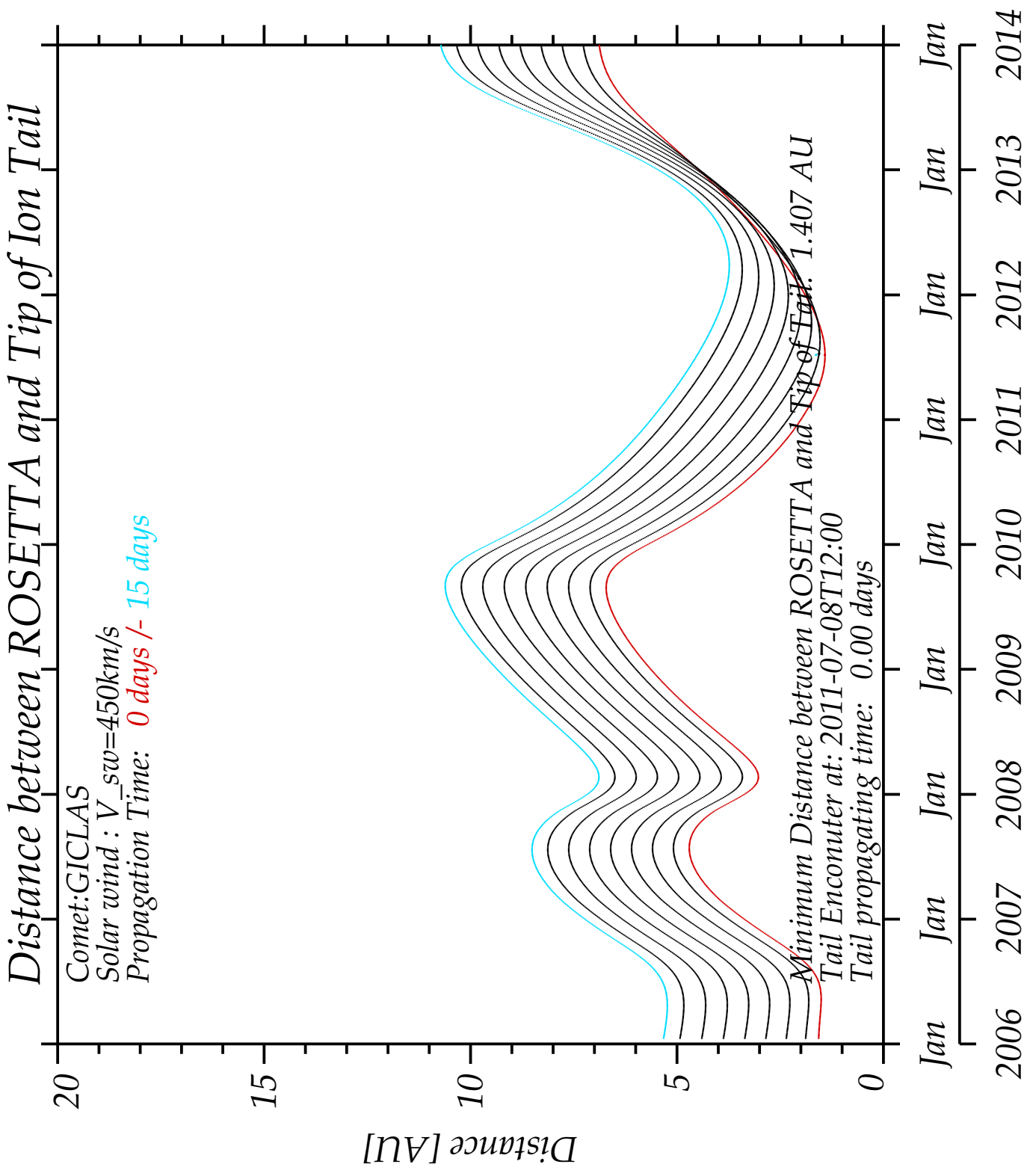


Figure 171: Minimum Distances: ROSETTA - GICLAS

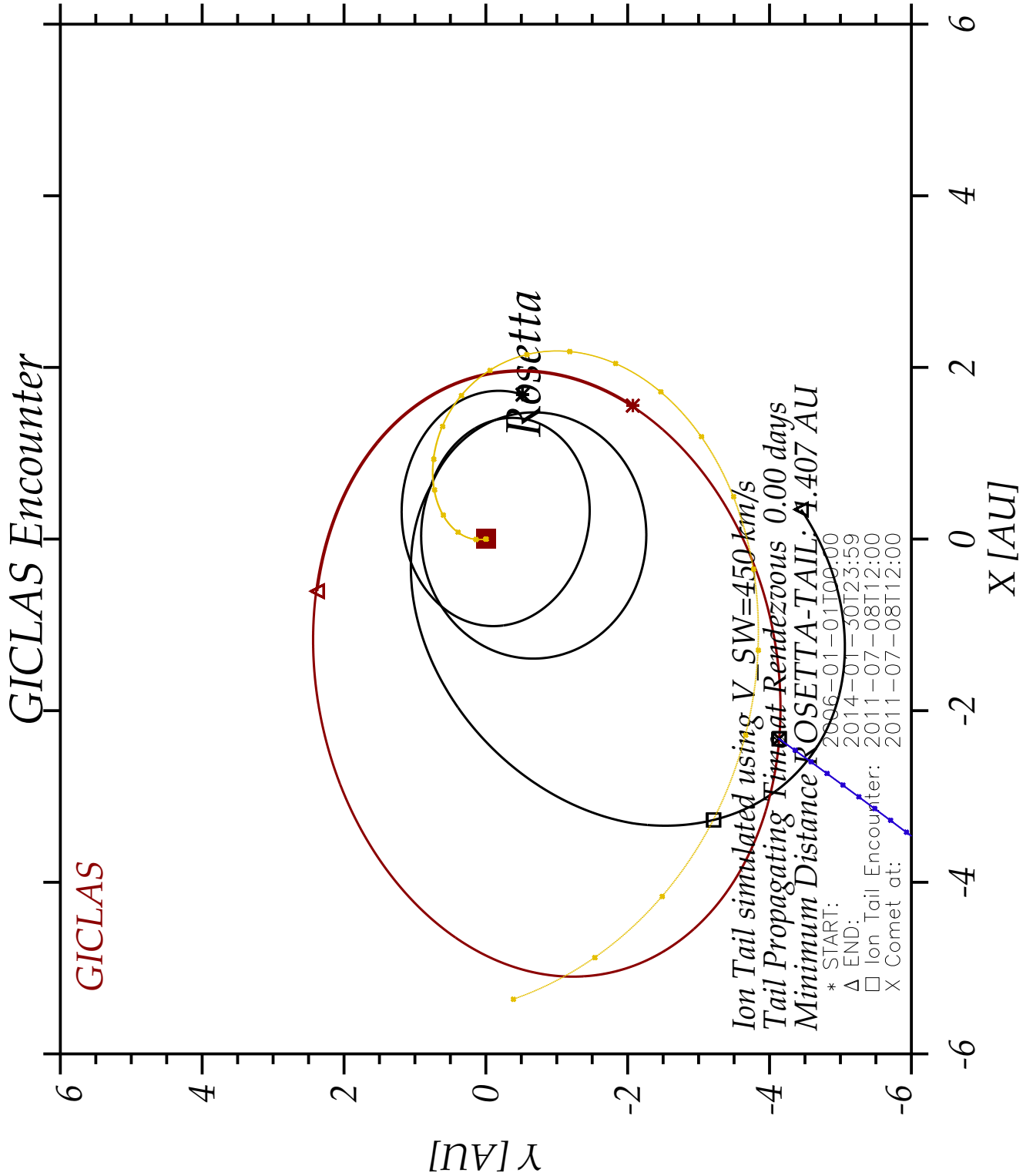


Figure 172: Overview: ROSETTA - GICLAS

<p style="text-align: center;">R O S E T T A</p>	<p>Document: RO-IGEP-TR-0020  Issue: 1  Revision: 2  Date: 2006-10-25  Page: 260</p>
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## 89 Comet 85P/BOETHIN

<p><b>Comet: 85P/BOETHIN</b></p>
<p><b>No Encounter below 0.2000AU</b></p>

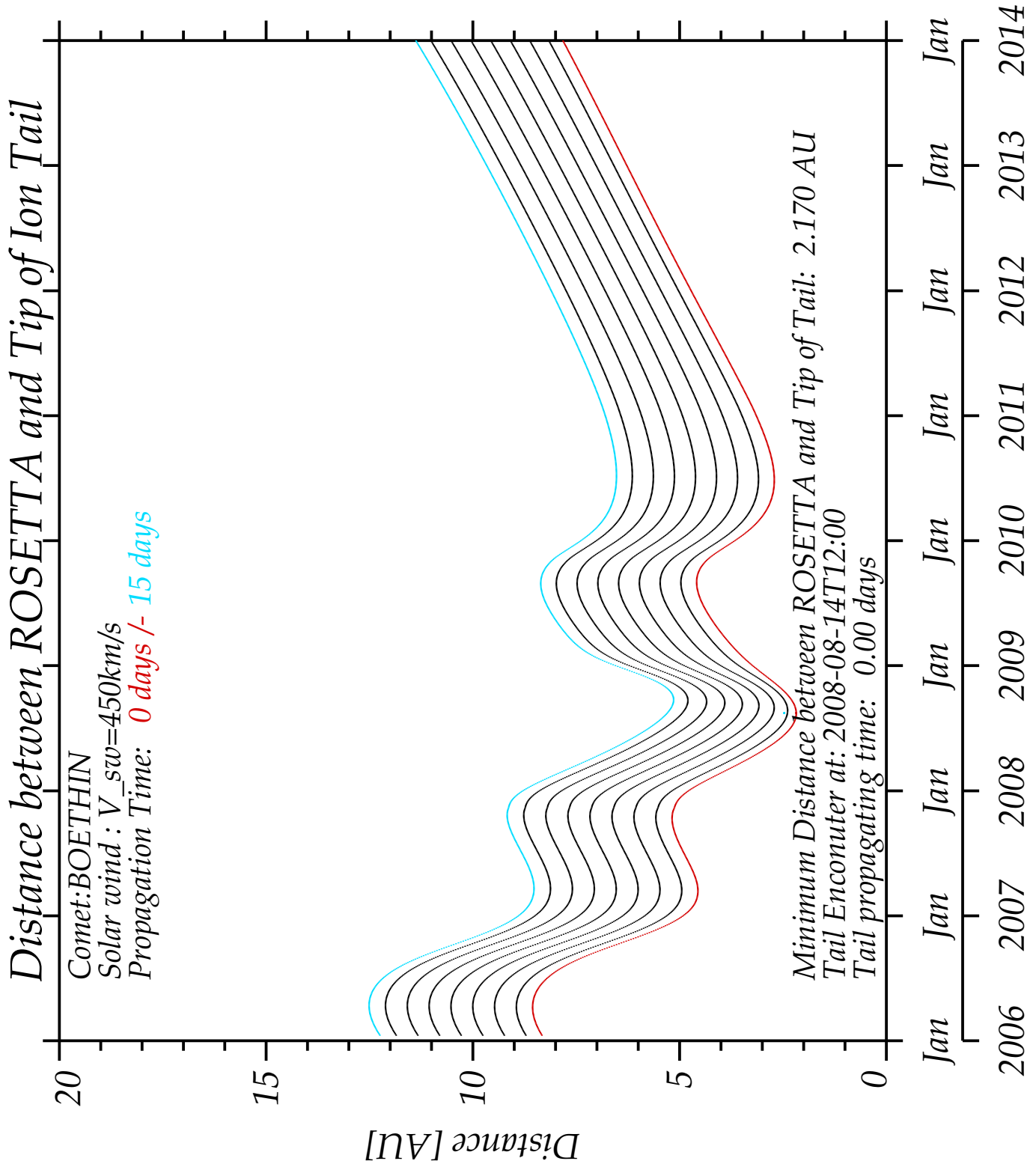


Figure 173: Minimum Distances: ROSETTA - BOETHIN

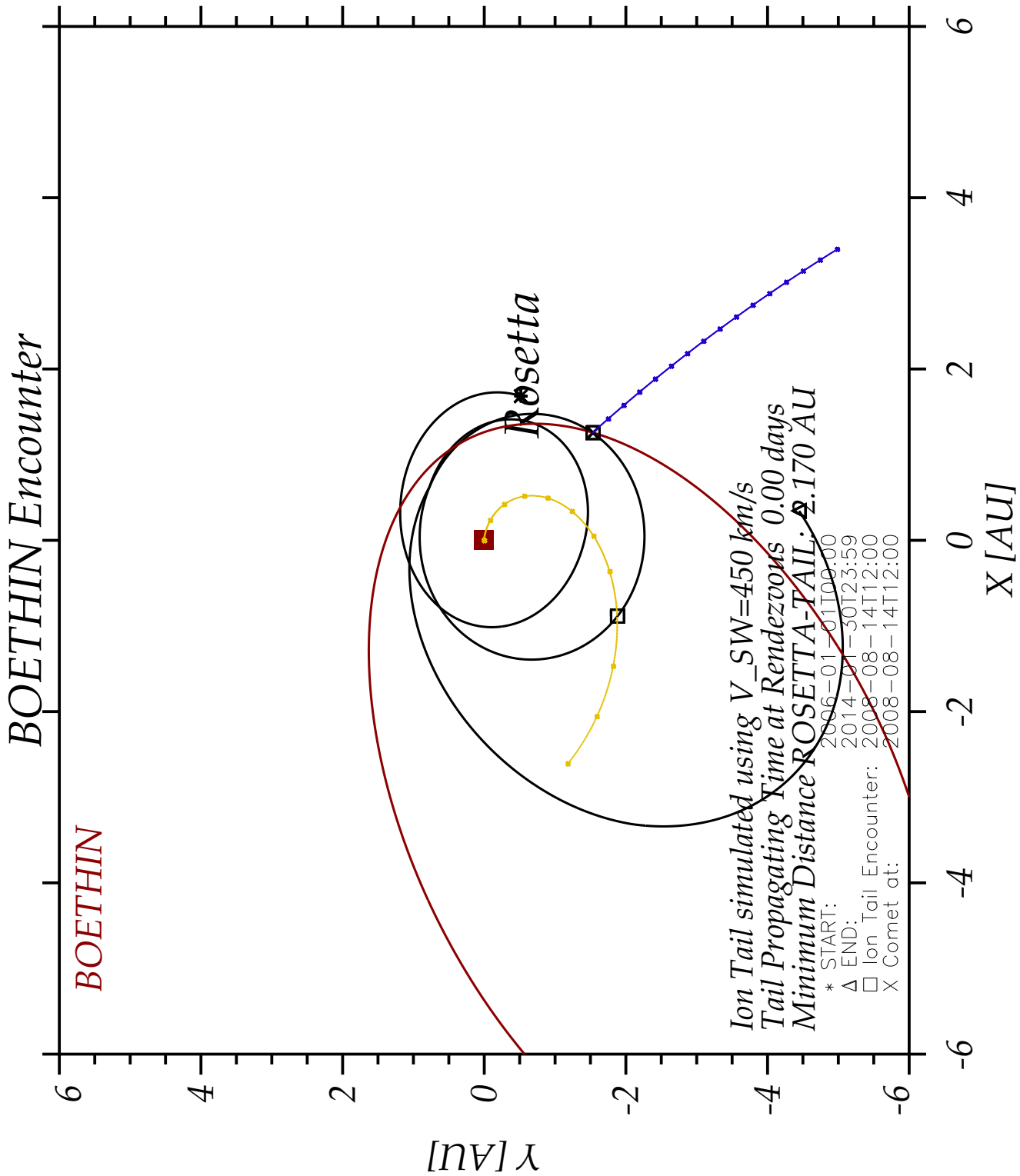


Figure 174: Overview: ROSETTA - BOETHIN

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## 90 Comet 86P/WILD 3

<b>Comet: 86P/WILD 3</b>
<b>No Encounter below 0.2000AU</b>



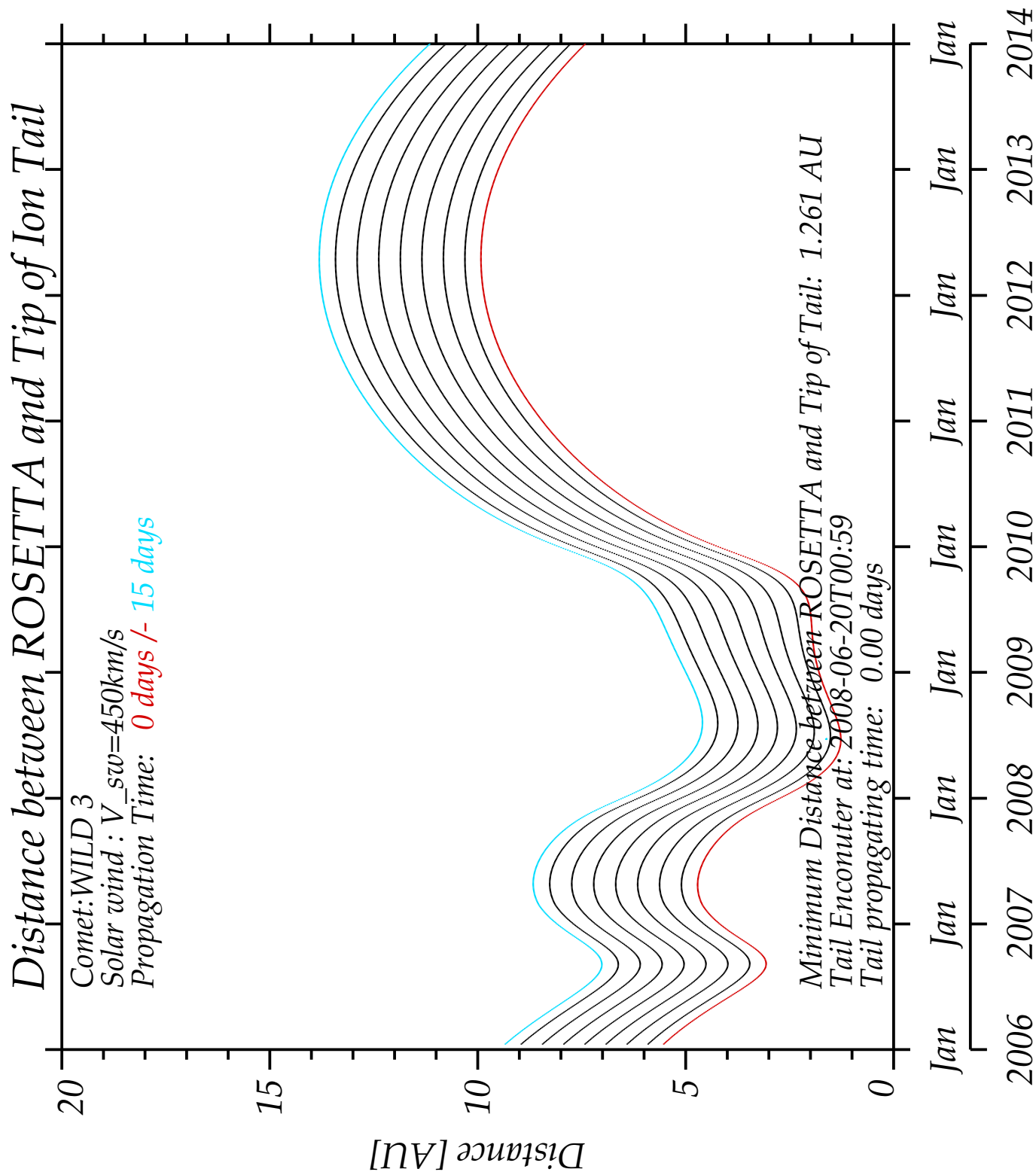


Figure 175: Minimum Distances: ROSETTA - WILD 3

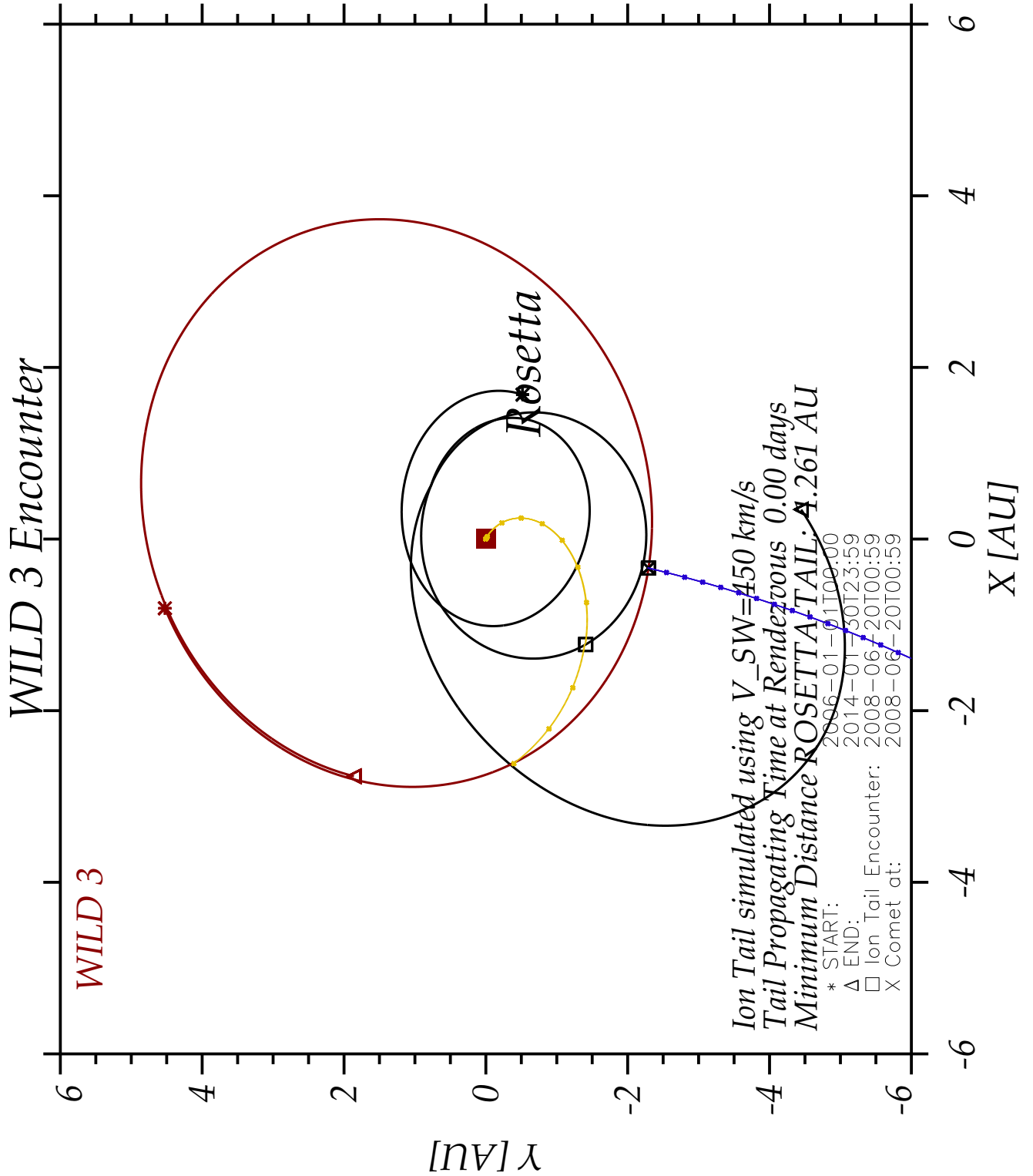


Figure 176: Overview: ROSETTA - WILD 3

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## 91 Comet 87P/BUS

<b>Comet: 87P/BUS</b>
<b>No Encounter below 0.2000AU</b>

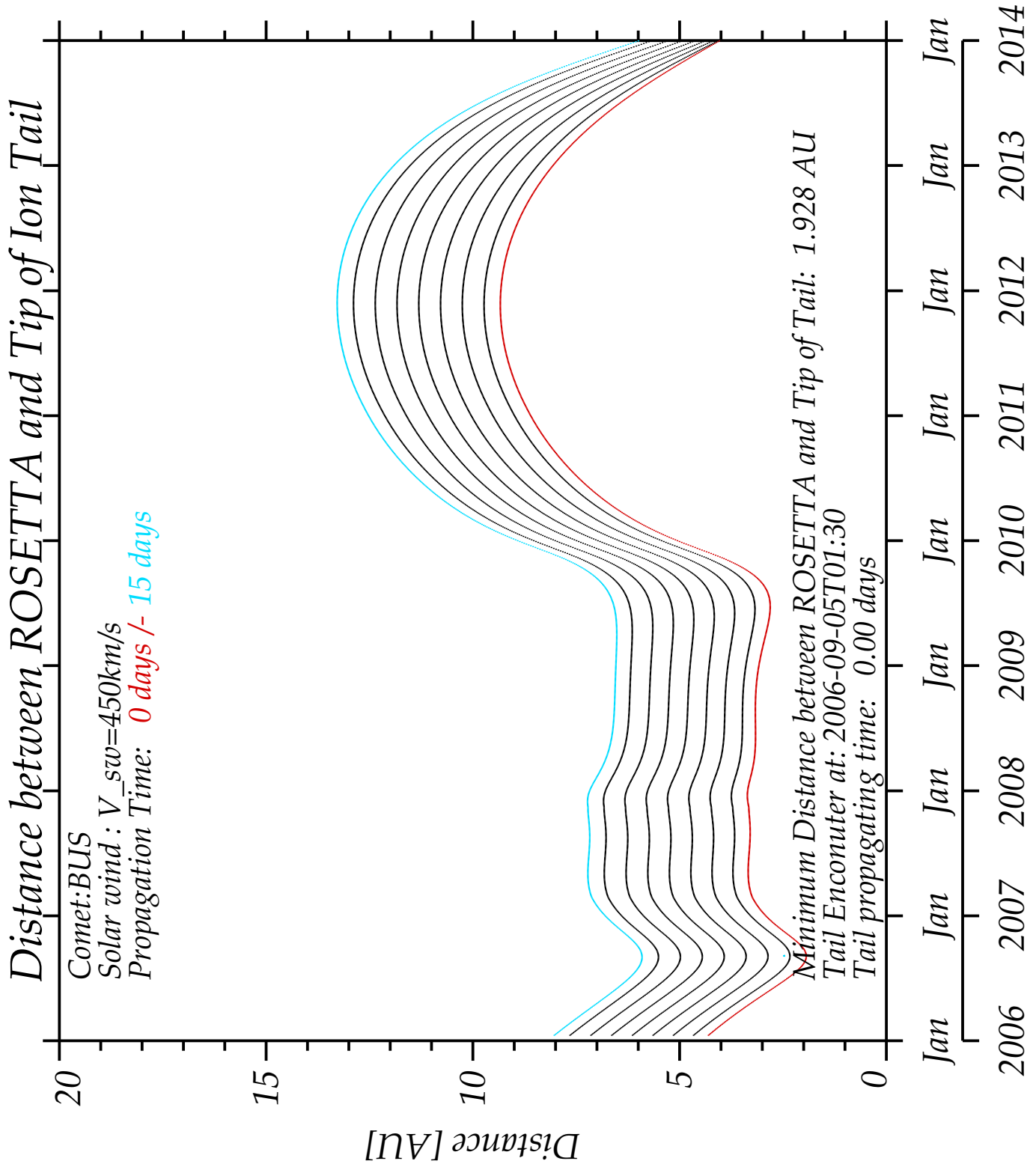


Figure 177: Minimum Distances: ROSETTA - BUS

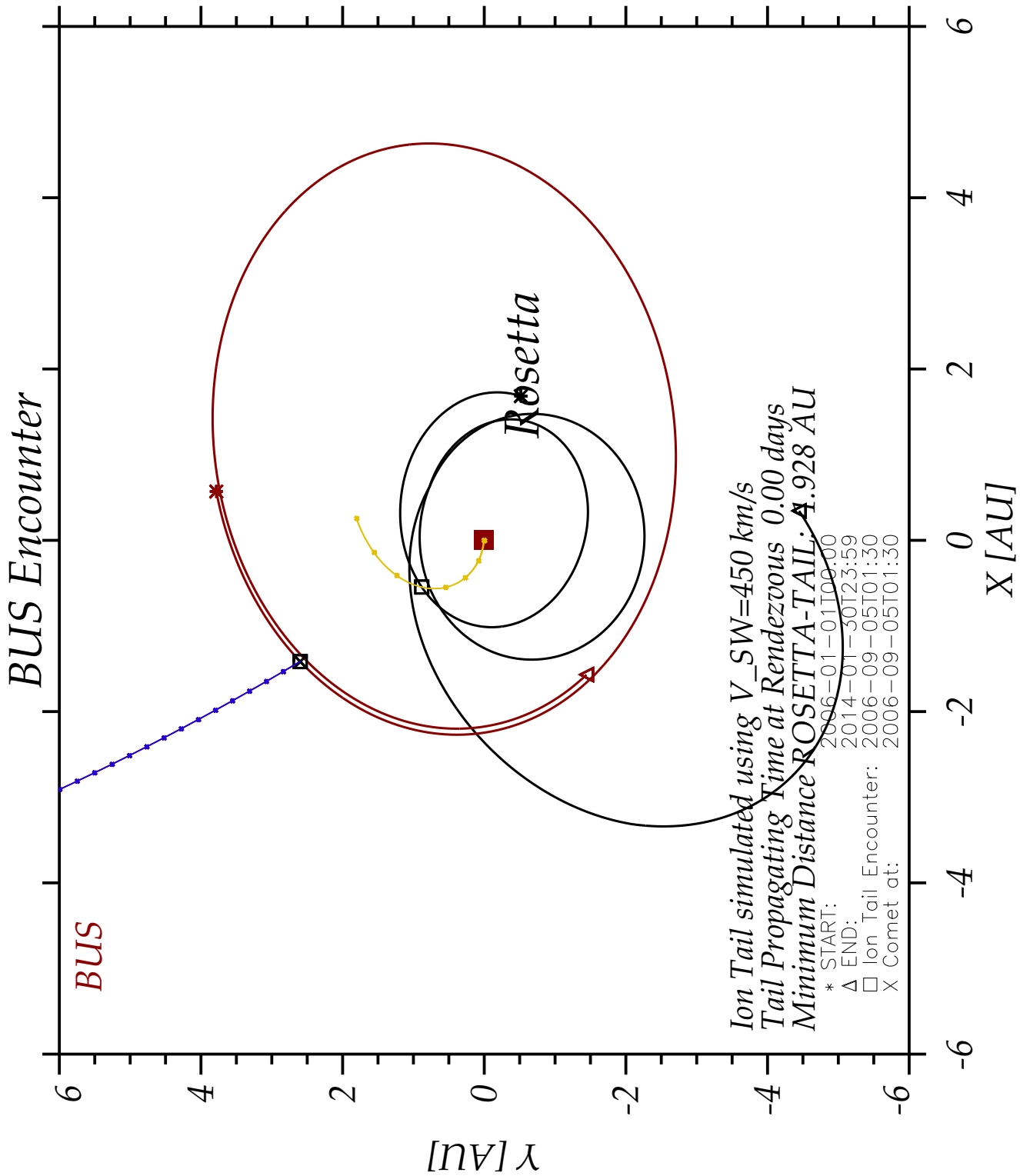


Figure 178: Overview: ROSETTA - BUS

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## **92 Comet 88P/HOWELL**

<b>Comet: 88P/HOWELL</b>
<b>No Encounter below 0.2000AU</b>

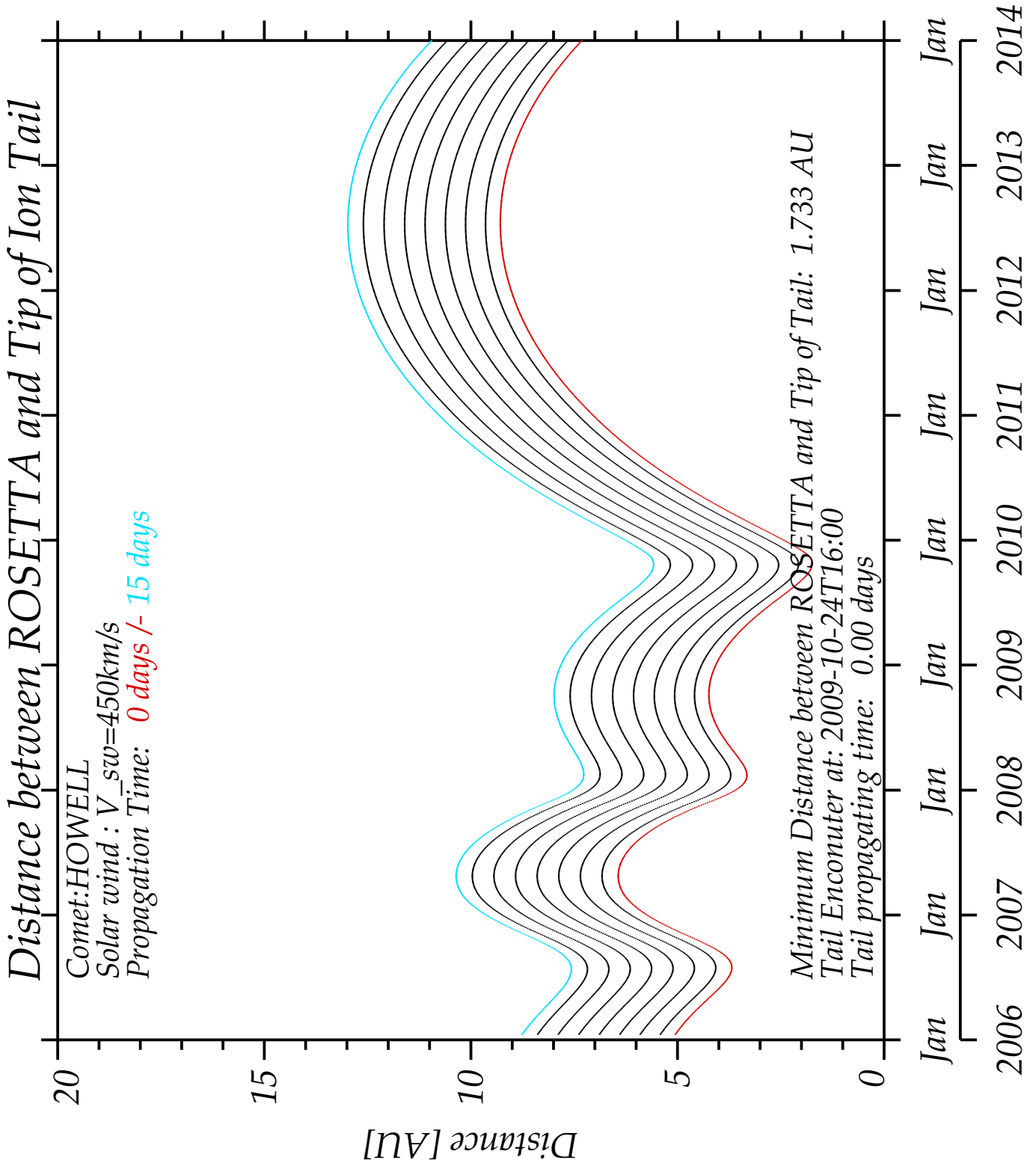


Figure 179: Minimum Distances: ROSETTA - HOWELL

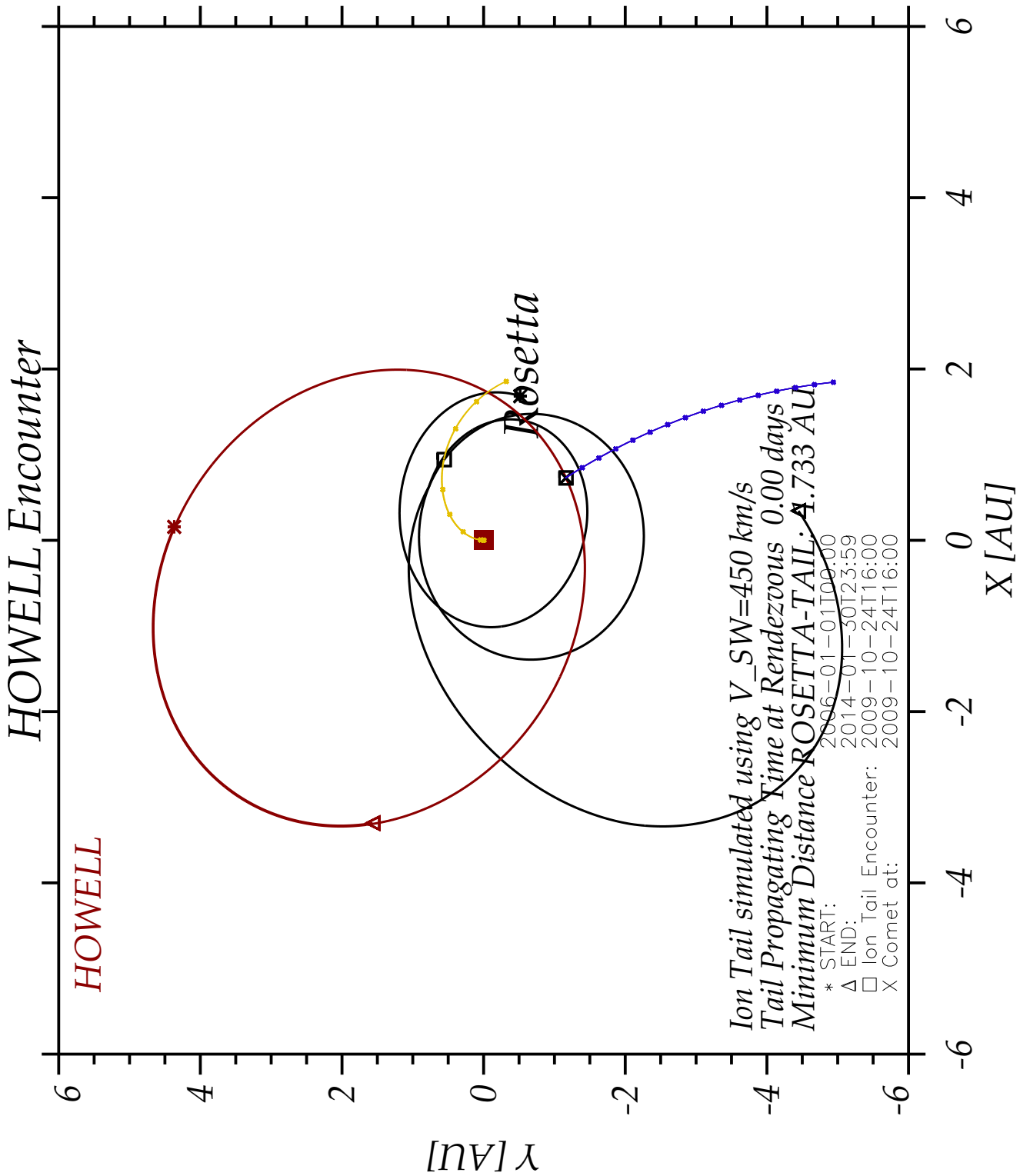


Figure 180: Overview: ROSETTA - HOWELL



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## **93 Comet 89P/RUSSELL 2**

<b>Comet: 89P/RUSSELL 2</b>
<b>No Encounter below 0.2000AU</b>

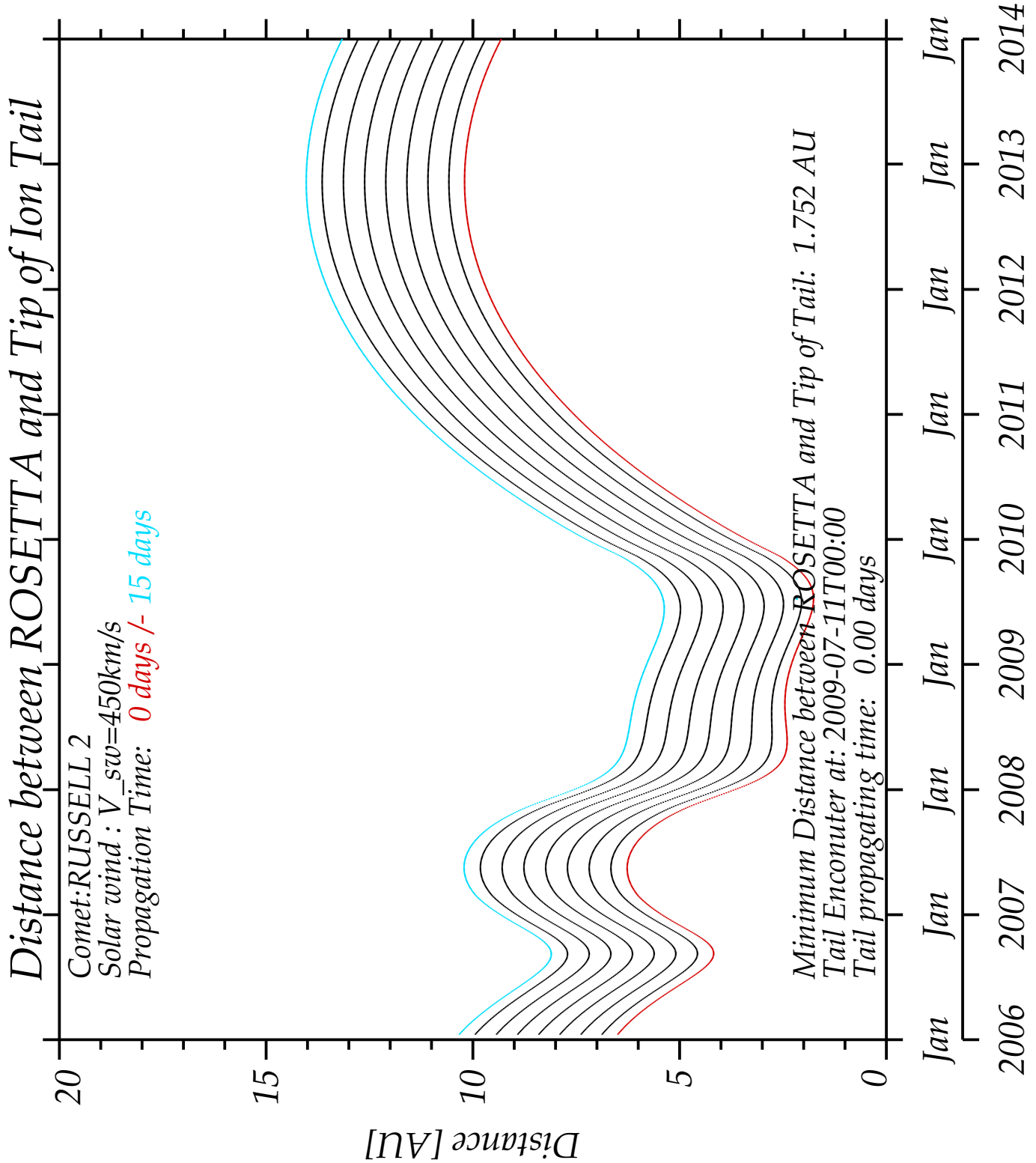


Figure 181: Minimum Distances: ROSETTA - RUSSELL 2

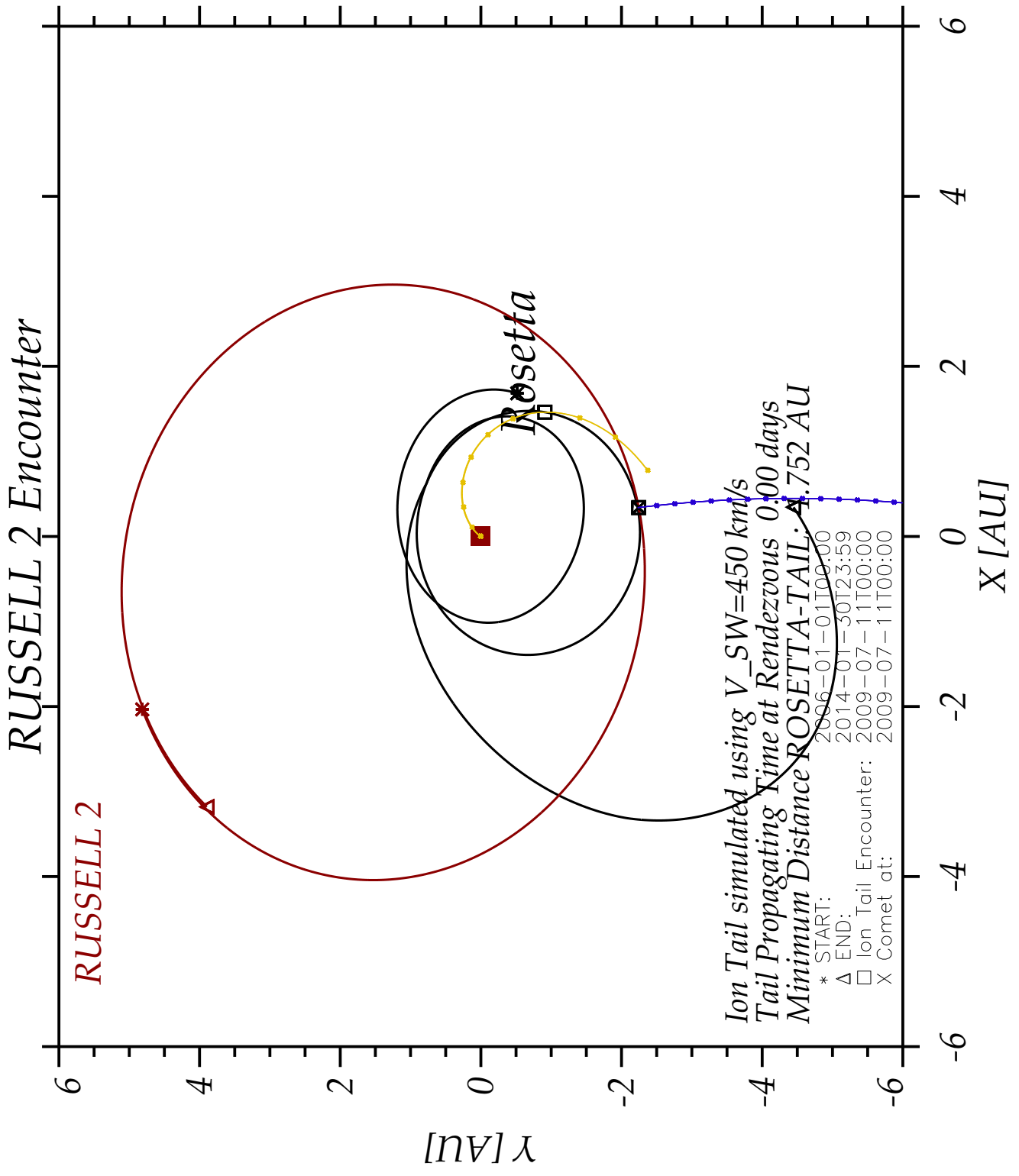


Figure 182: Overview: ROSETTA - RUSSELL 2

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## **94 Comet 90P/GEHRELS 1**

<b>Comet: 90P/GEHRELS 1</b>
<b>No Encounter below 0.2000AU</b>

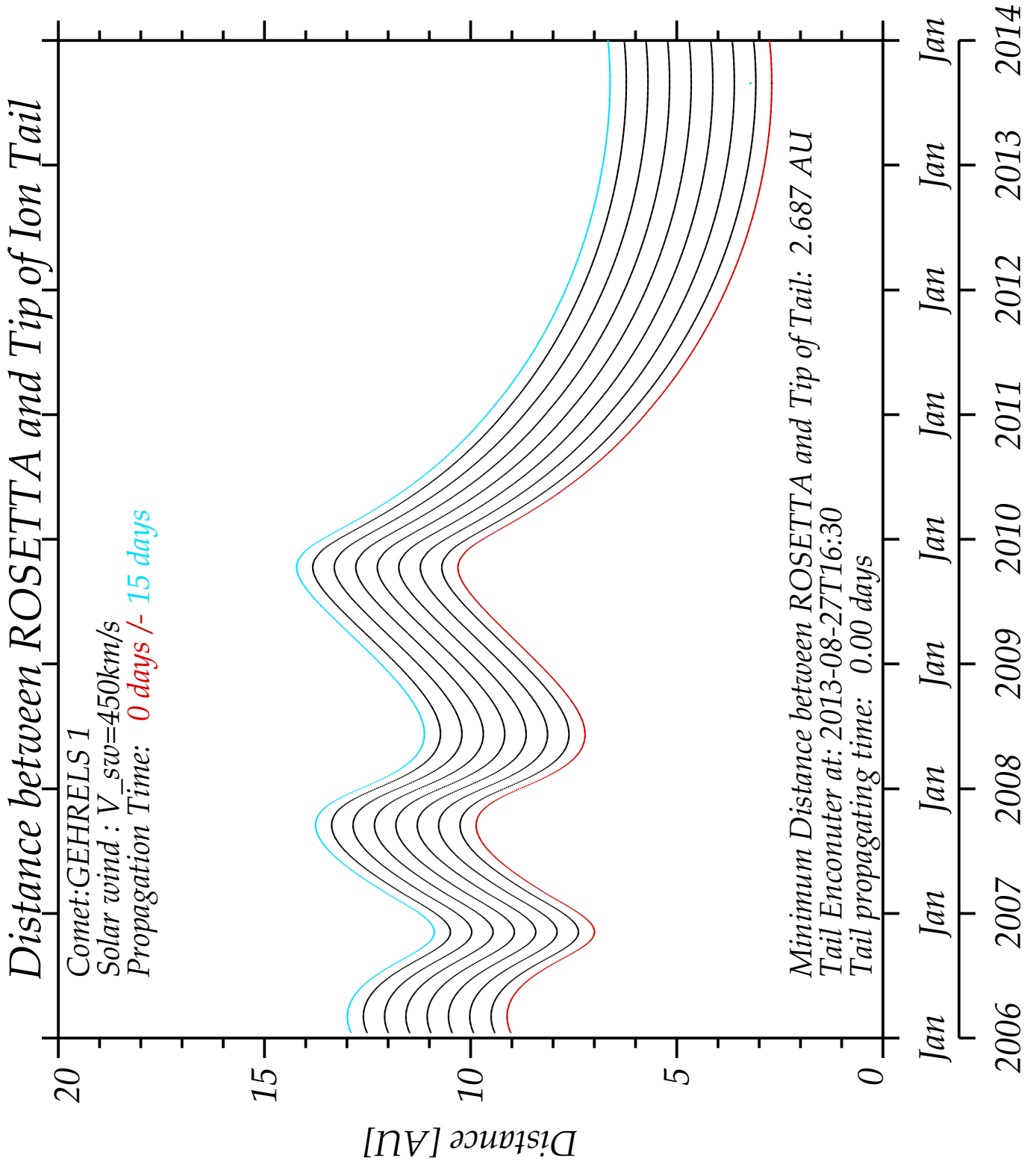


Figure 183: Minimum Distances: ROSETTA - GEHRELS 1

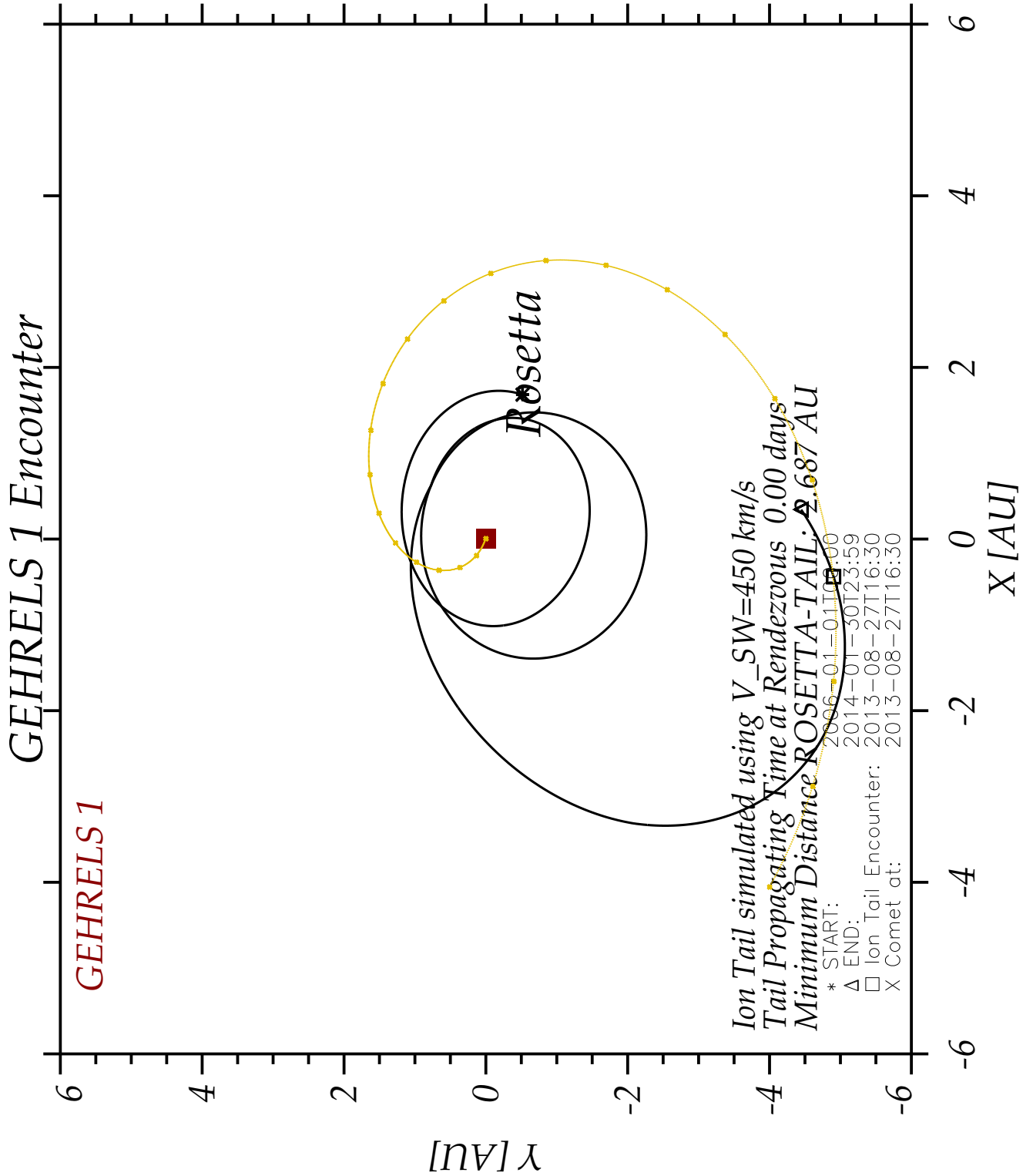


Figure 184: Overview: ROSETTA - GEHRELS 1

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## **95 Comet 91P/RUSSELL 3**

<b>Comet: 91P/RUSSELL 3</b>
<b>No Encounter below 0.2000AU</b>

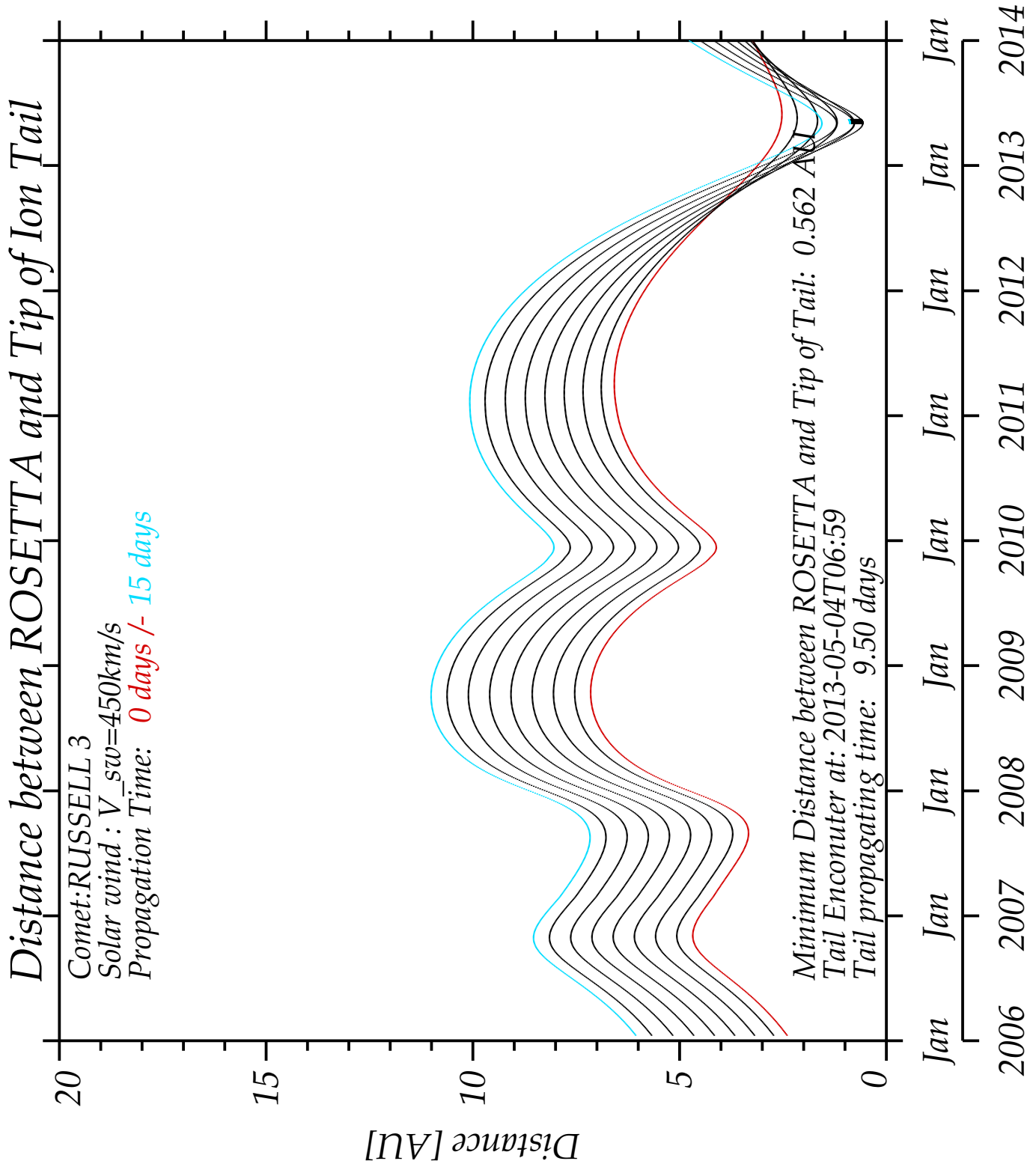


Figure 185: Minimum Distances: ROSETTA - RUSSELL 3



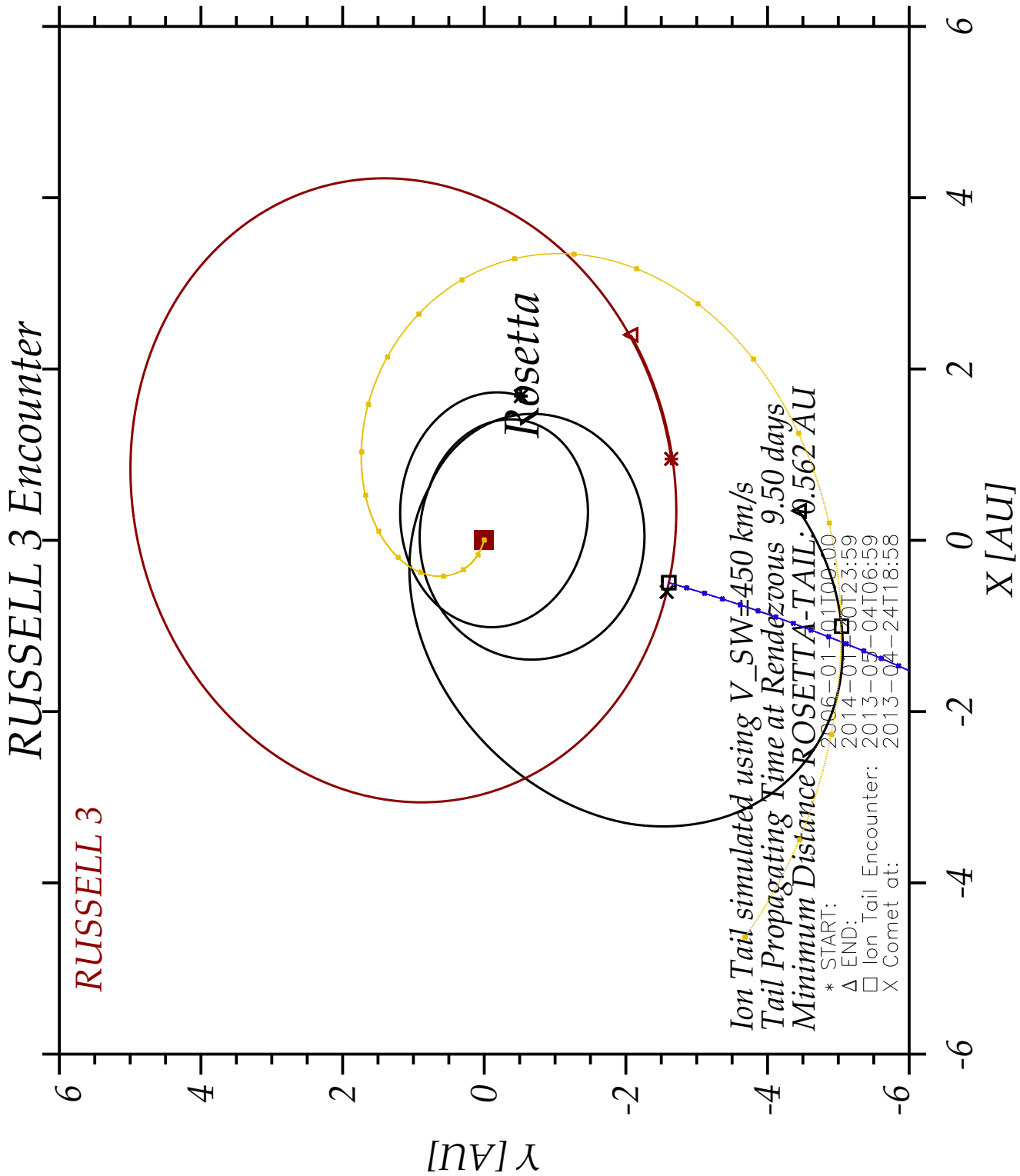


Figure 186: Overview: ROSETTA - RUSSELL 3

<p style="text-align: center;">R O S E T T A</p>	<p>Document: RO-IGEP-TR-0020  Issue: 1  Revision: 2</p>
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## 96 Comet 92P/SANGUIN

<p><b>Comet: 92P/SANGUIN</b></p>
<p><b>No Encounter below 0.2000AU</b></p>

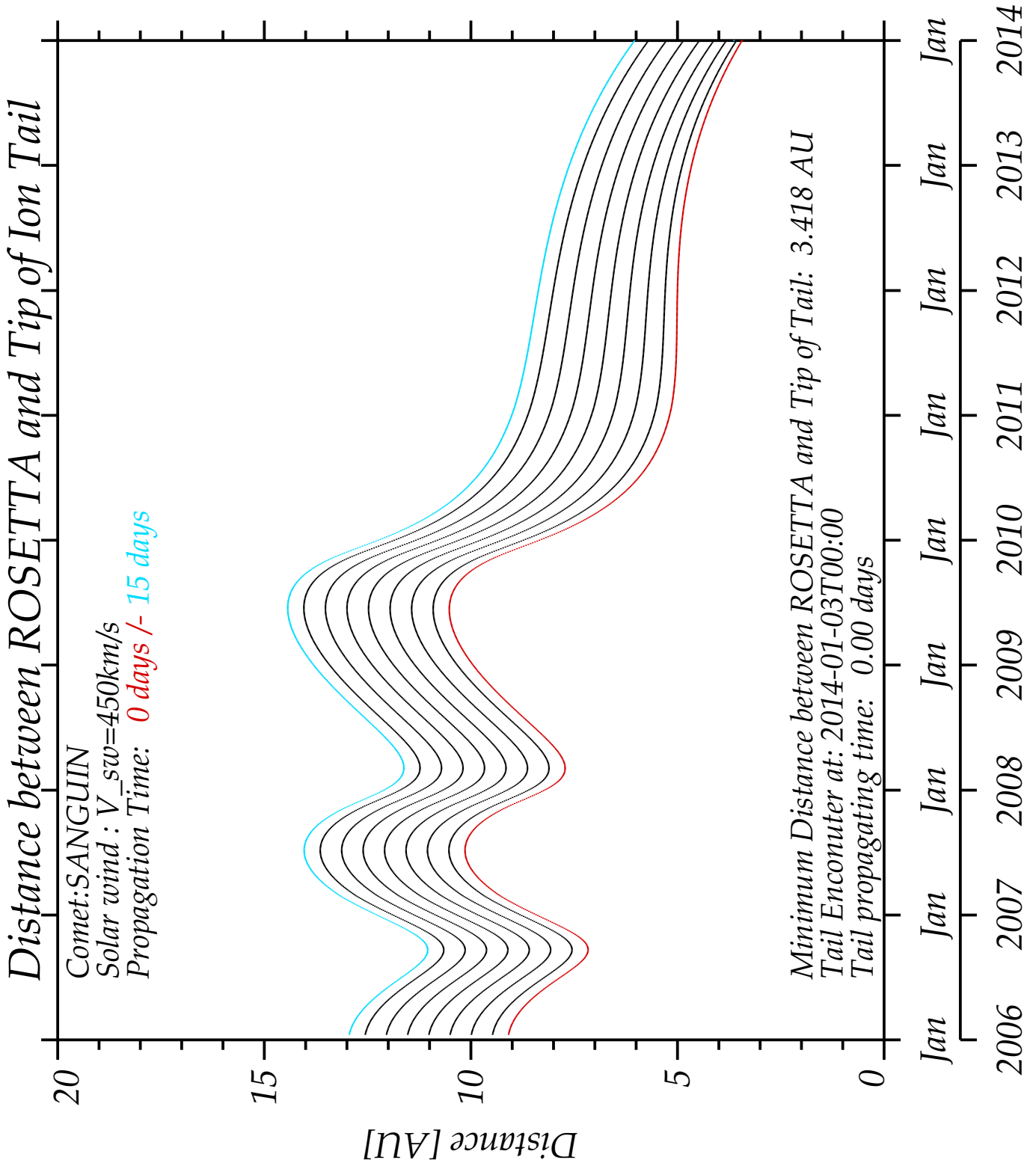


Figure 187: Minimum Distances: ROSETTA - SANGUIN

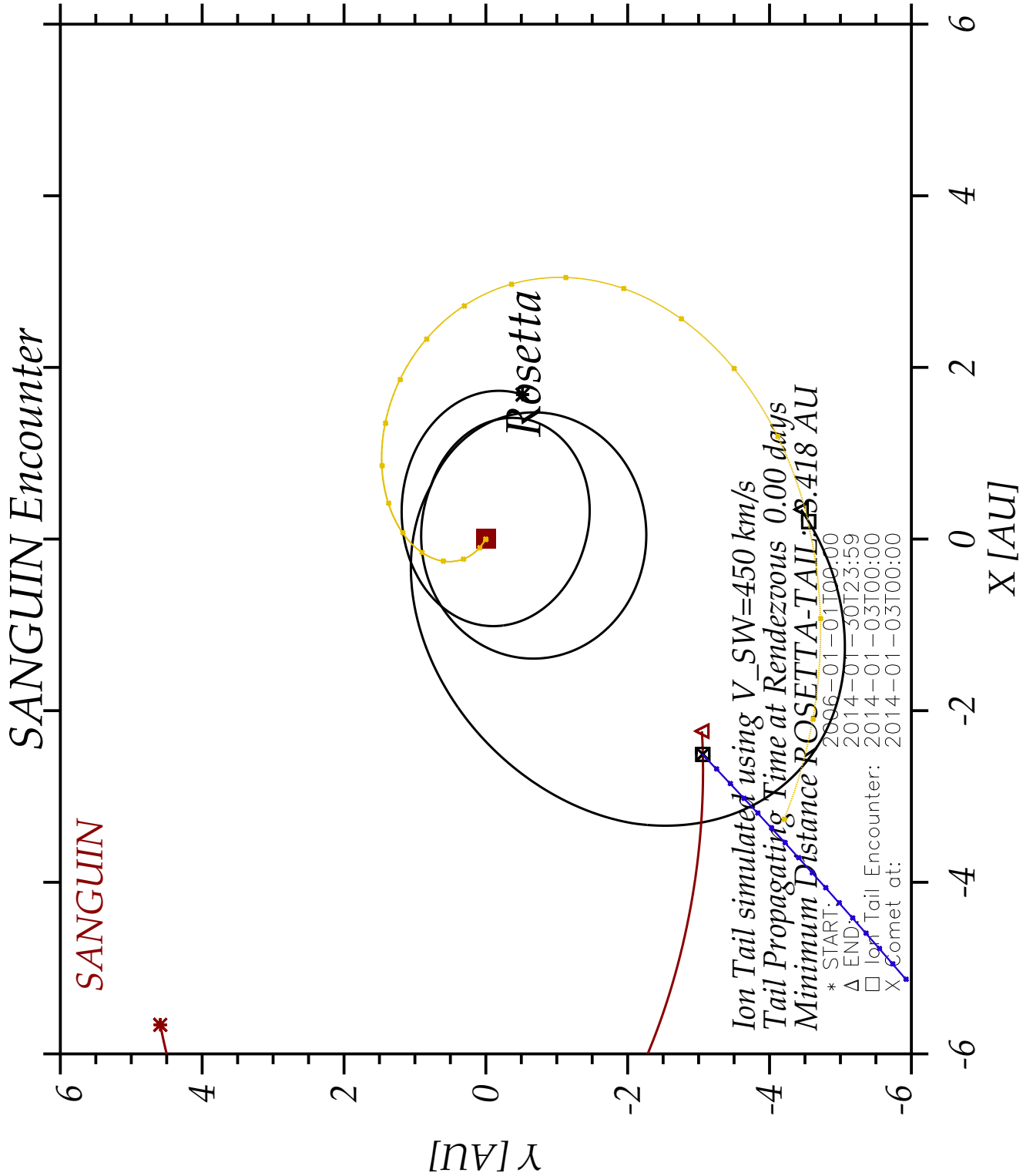


Figure 188: Overview: ROSETTA - SANGUIN

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## **97 Comet 93P/LOVAS 1**

<b>Comet: 93P/LOVAS 1</b>
<b>No Encounter below 0.2000AU</b>

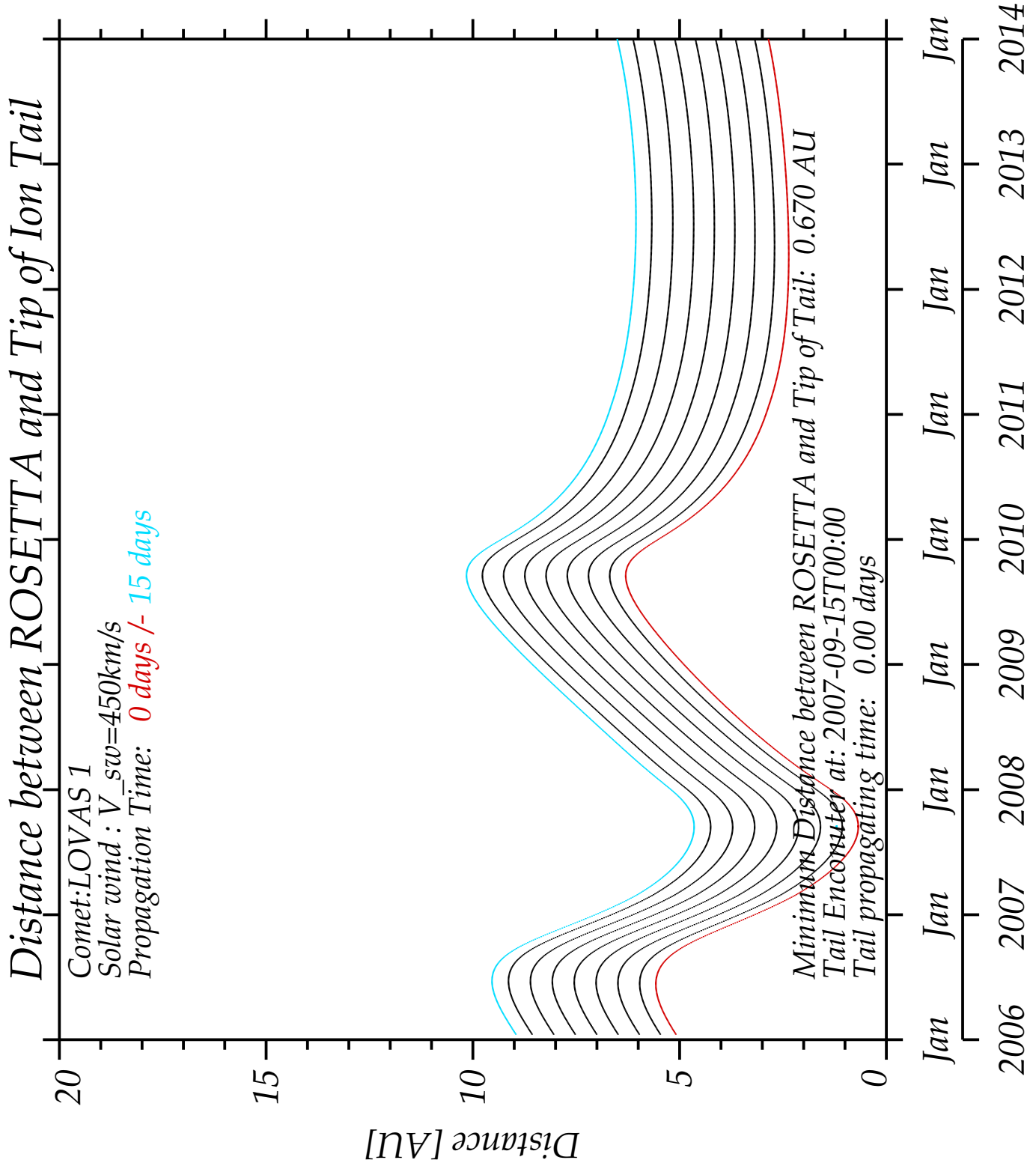


Figure 189: Minimum Distances: ROSETTA - LOVAS 1

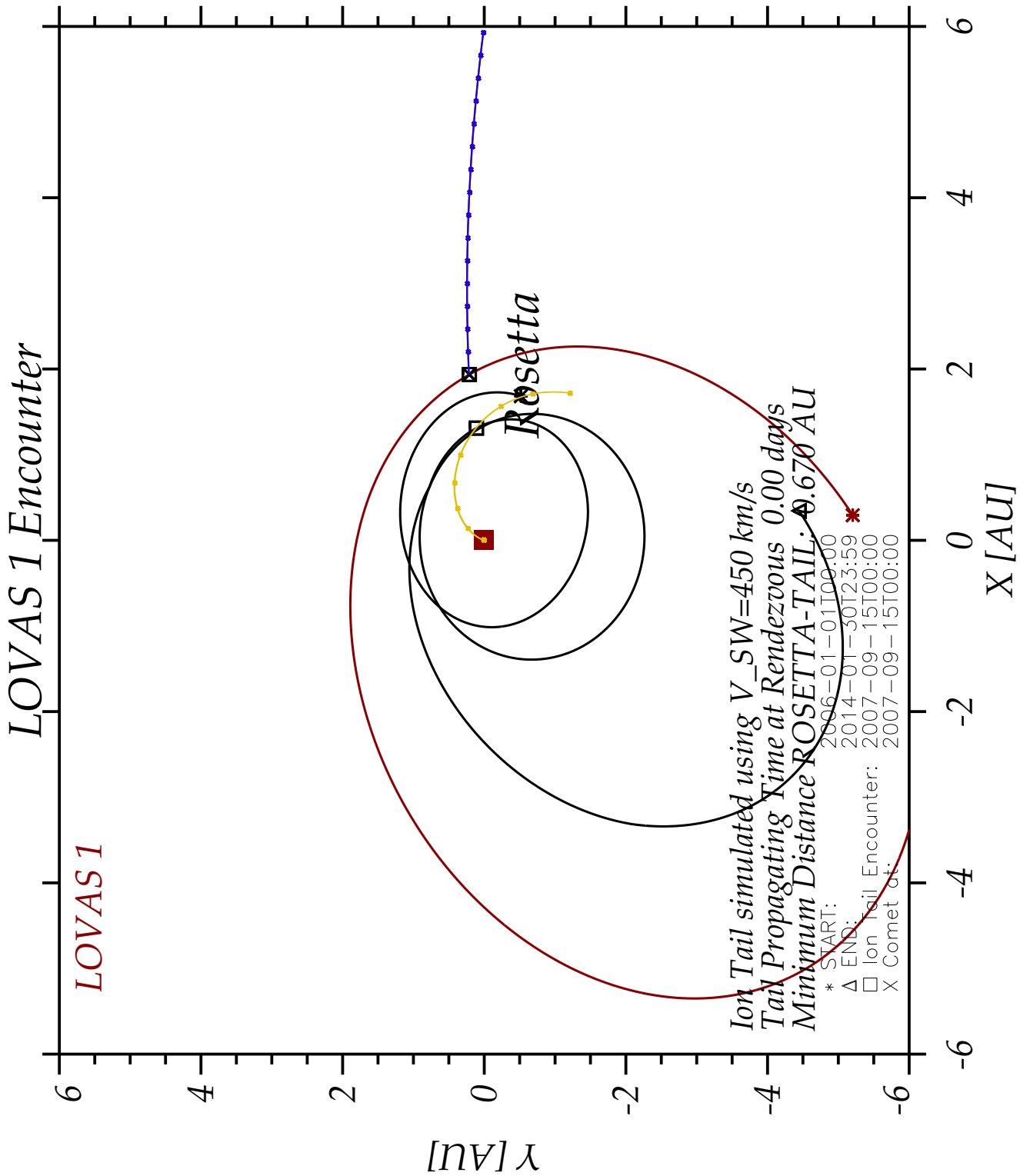


Figure 190: Overview: ROSETTA - LOVAS 1

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## 98 Comet 94P/RUSSELL 4

<b>Comet:</b>	<b>94P/RUSSELL 4</b>				
<b>Date of Encounter:</b>	<b>2010-05-09T11:59</b>				
<b>Minimum Distance</b>					
<b>ROSETTA/Ion Tail:</b>	<b>0.1110</b>				<b>AU</b>
<b>Position of ROSETTA</b>	<b>-2.2303</b>	<b>0.1422</b>	<b>0.1392</b>	<b>2.2392</b>	<b>AU, [x,y,z],r</b>
<b>Position of COMET:</b>	<b>-2.2532</b>	<b>0.0880</b>	<b>0.2338</b>	<b>2.2670</b>	<b>AU, [x,y,z],r</b>
<b>Velocity of ROSETTA</b>	<b>-15.57</b>	<b>-16.15</b>	<b>0.14</b>	<b>22.43</b>	<b>km/s, [vx,vy,vz],v</b>
<b>Velocity of COMET:</b>	<b>-2.45</b>	<b>-22.96</b>	<b>-0.56</b>	<b>23.10</b>	<b>km/s, [vx,vy,vz],v</b>
<b>Tail Intersection Angle:</b>	<b>48.5</b>				<b>deg</b>
<b>Velocity of ROSETTA</b>					
<b>normal to Tail:</b>	<b>16.80</b>				<b>km/s</b>
<b>Proagting Time</b>					
<b>of Tail</b>	<b>0.000</b>				<b>days</b>



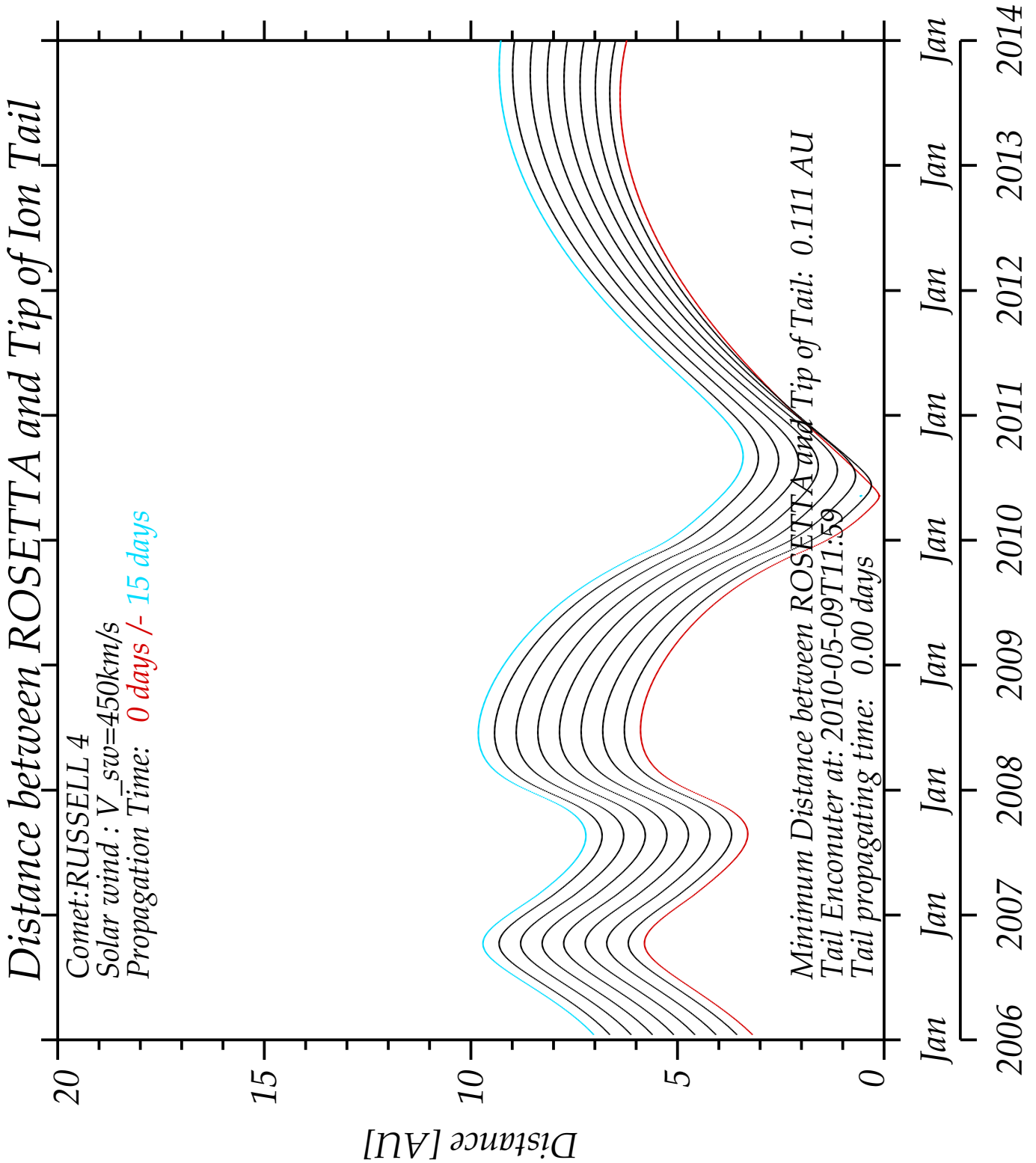


Figure 191: Minimum Distances: ROSETTA - RUSSELL 4

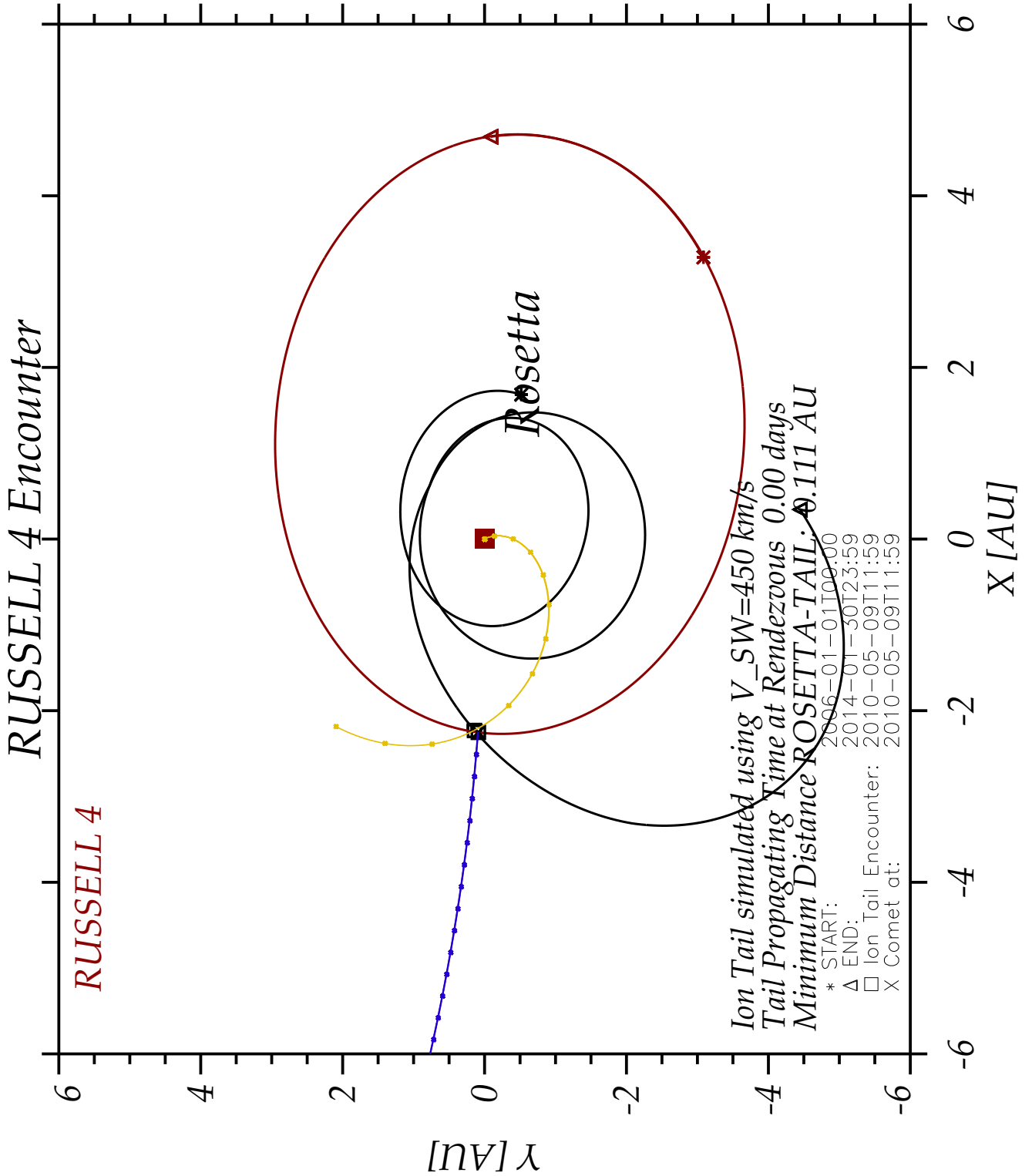


Figure 192: Overview: ROSETTA - RUSSELL 4

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## **99 Comet 95P/CHIRON**

<b>Comet: 95P/CHIRON</b>
<b>No Encounter below 0.2000AU</b>

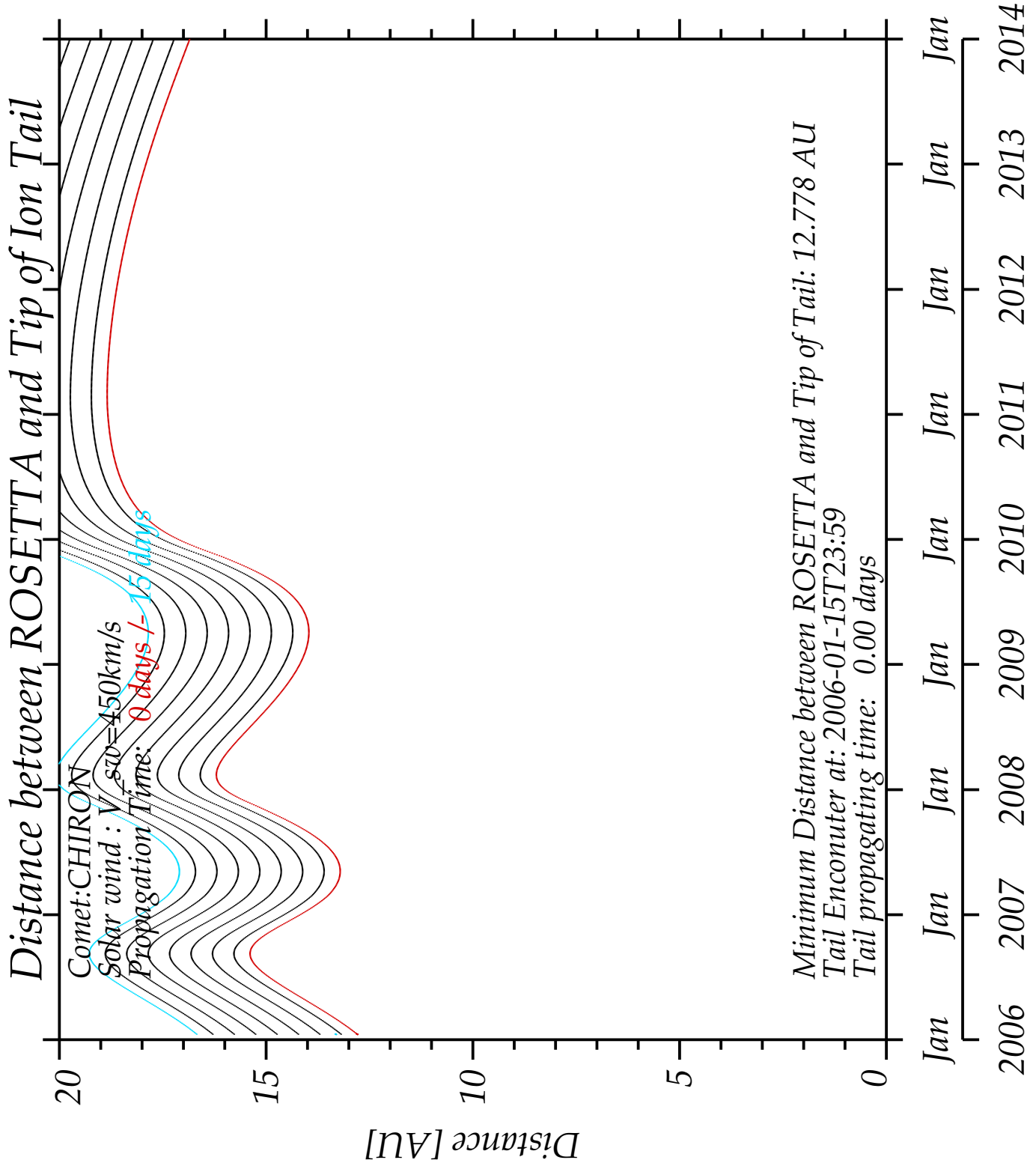


Figure 193: Minimum Distances: ROSETTA - CHIRON

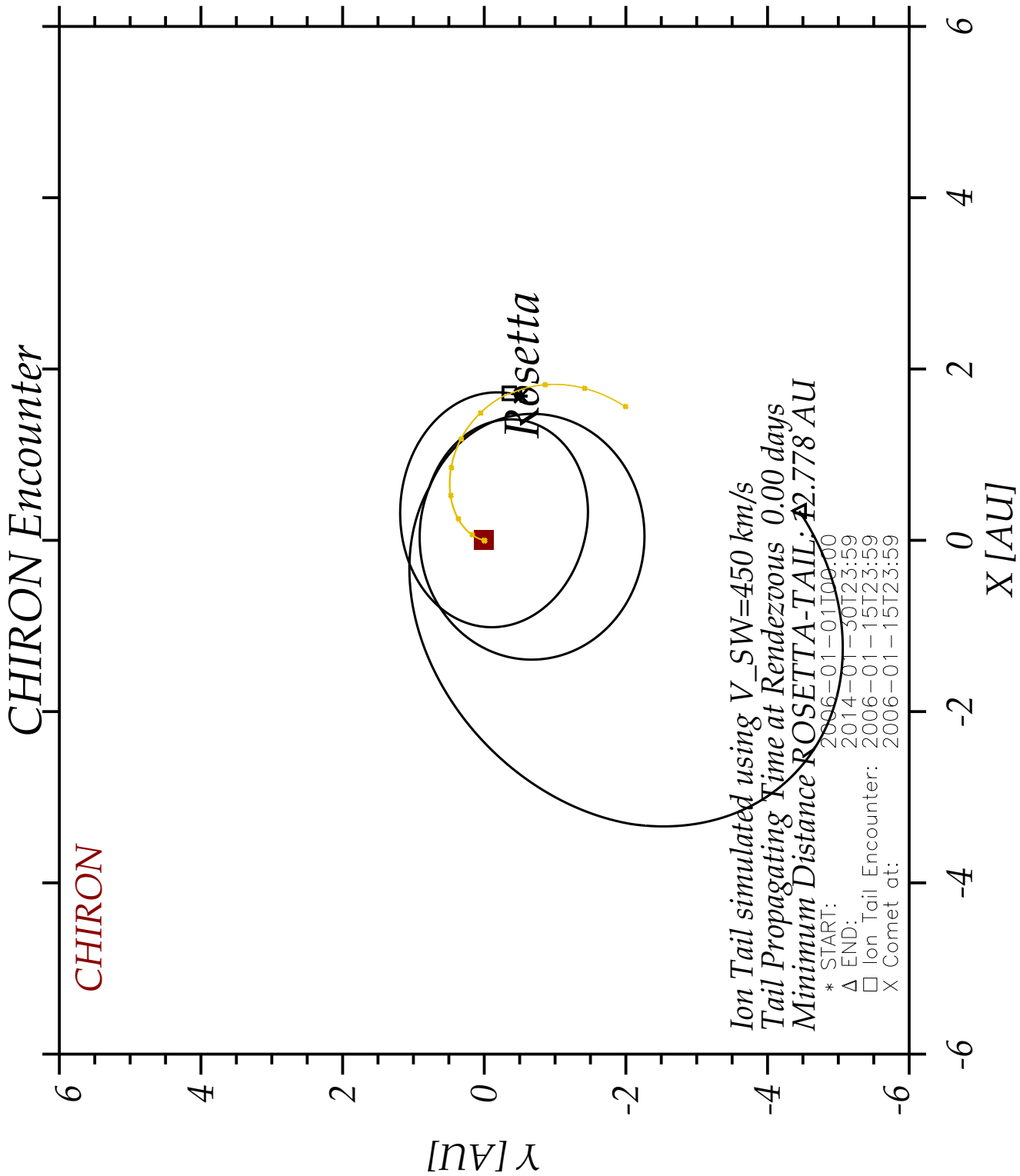


Figure 194: Overview: ROSETTA - CHIRON

<p style="text-align: center;">R O S E T T A</p>	<p>Document: RO-IGEP-TR-0020  Issue: 1  Revision: 2</p>
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## 100 Comet 96P/MACHHOLZ

<p><b>Comet: 96P/MACHHOLZ</b></p>
<p><b>No Encounter below 0.2000AU</b></p>

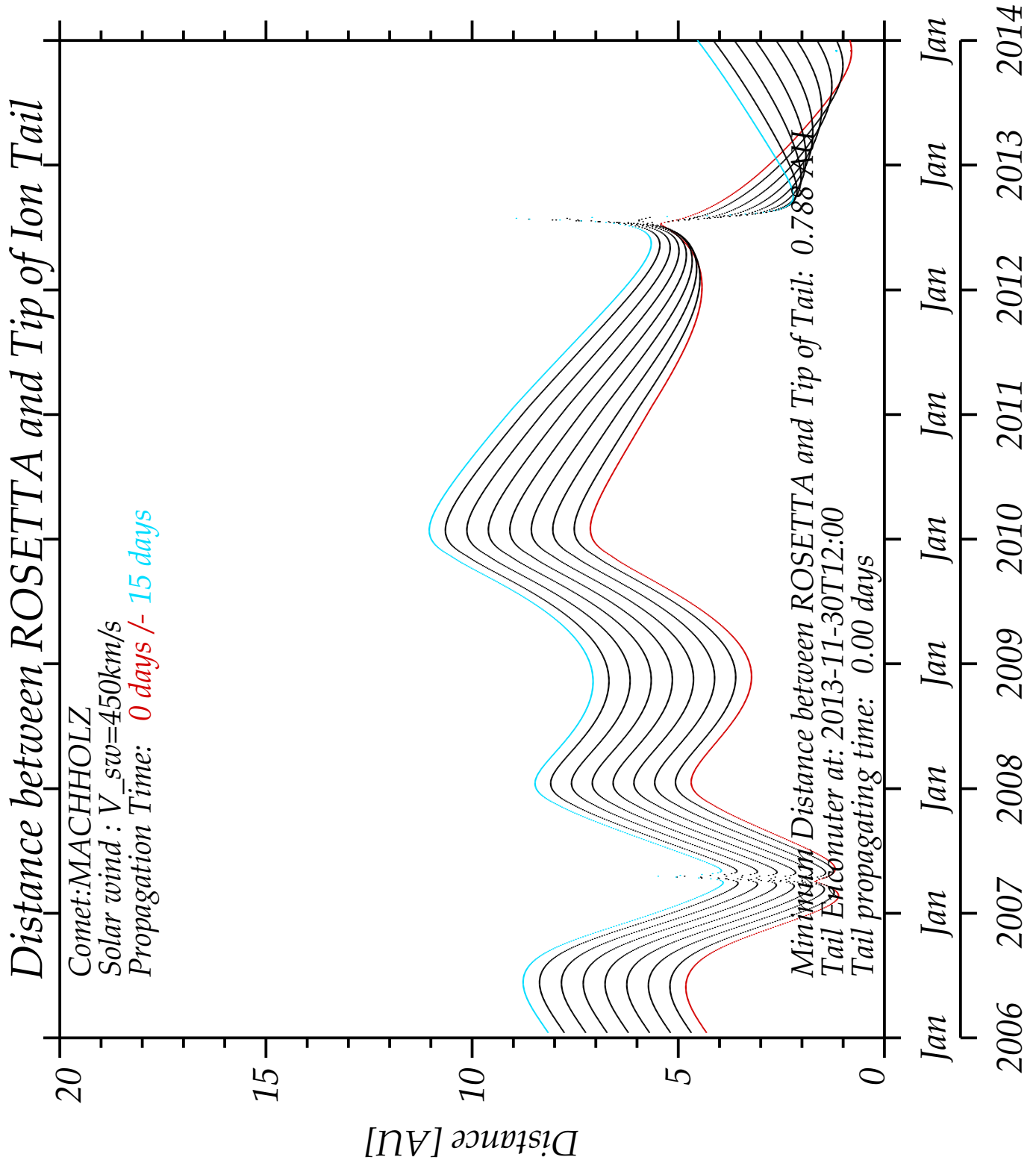


Figure 195: Minimum Distances: ROSETTA - MACHHOLZ

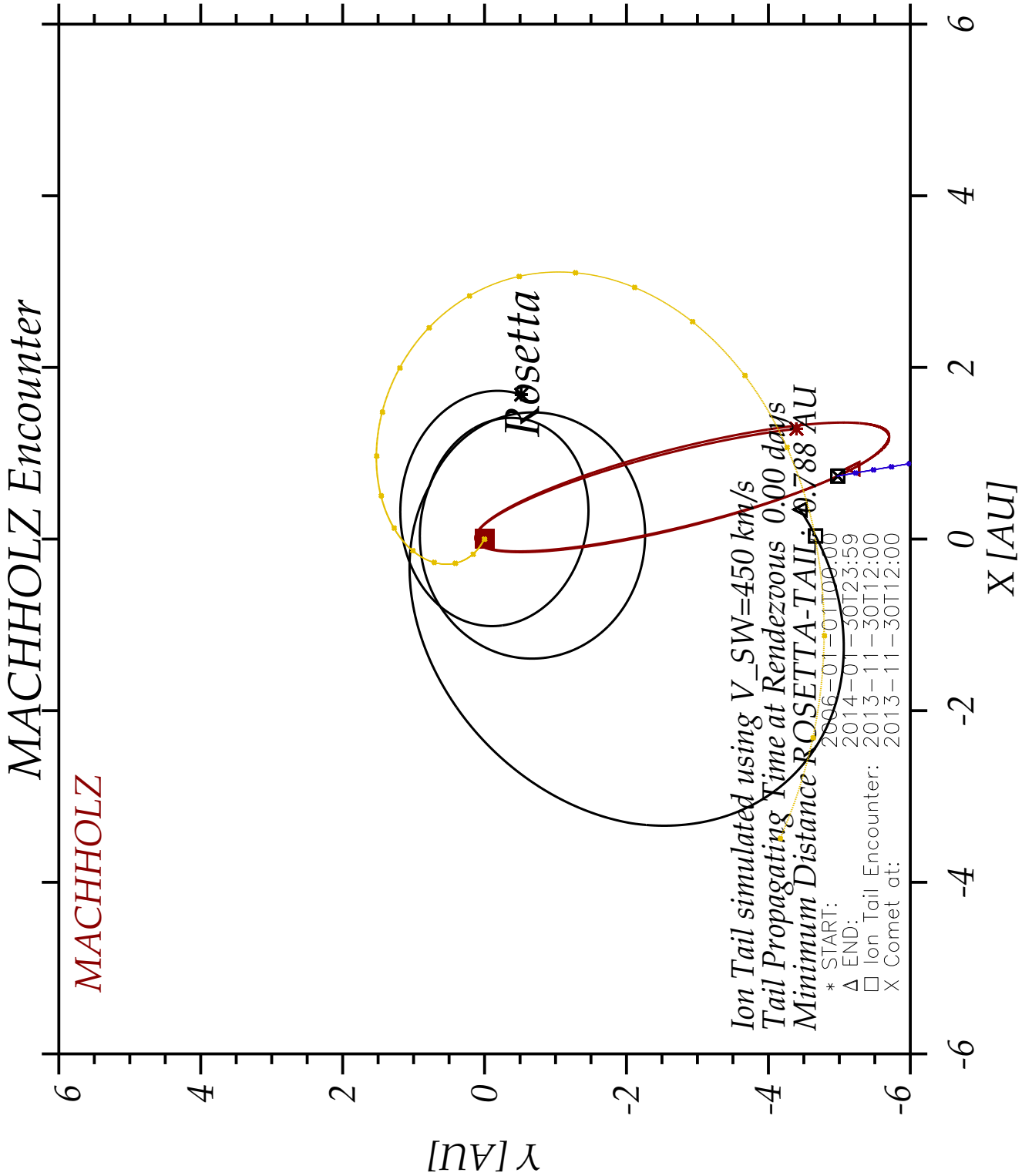


Figure 196: Overview: ROSETTA - MACHHOLZ



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## 101 Comet 97P/METCALF-BREWINGTON

<b>Comet: 97P/METCALF-BREWINGTON</b>
<b>No Encounter below 0.2000AU</b>

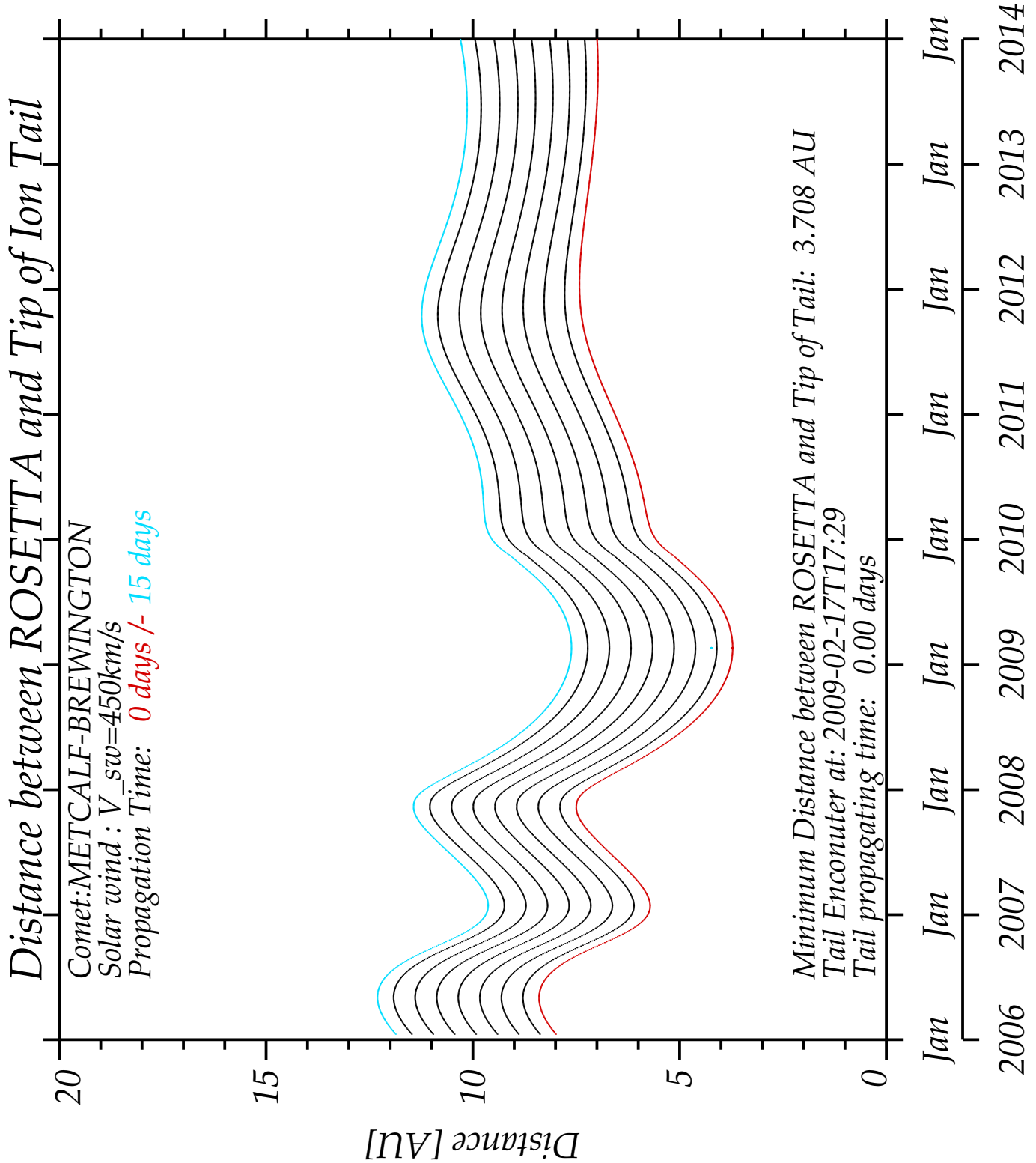


Figure 197: Minimum Distances: ROSETTA - METCALF-BREWINGTON

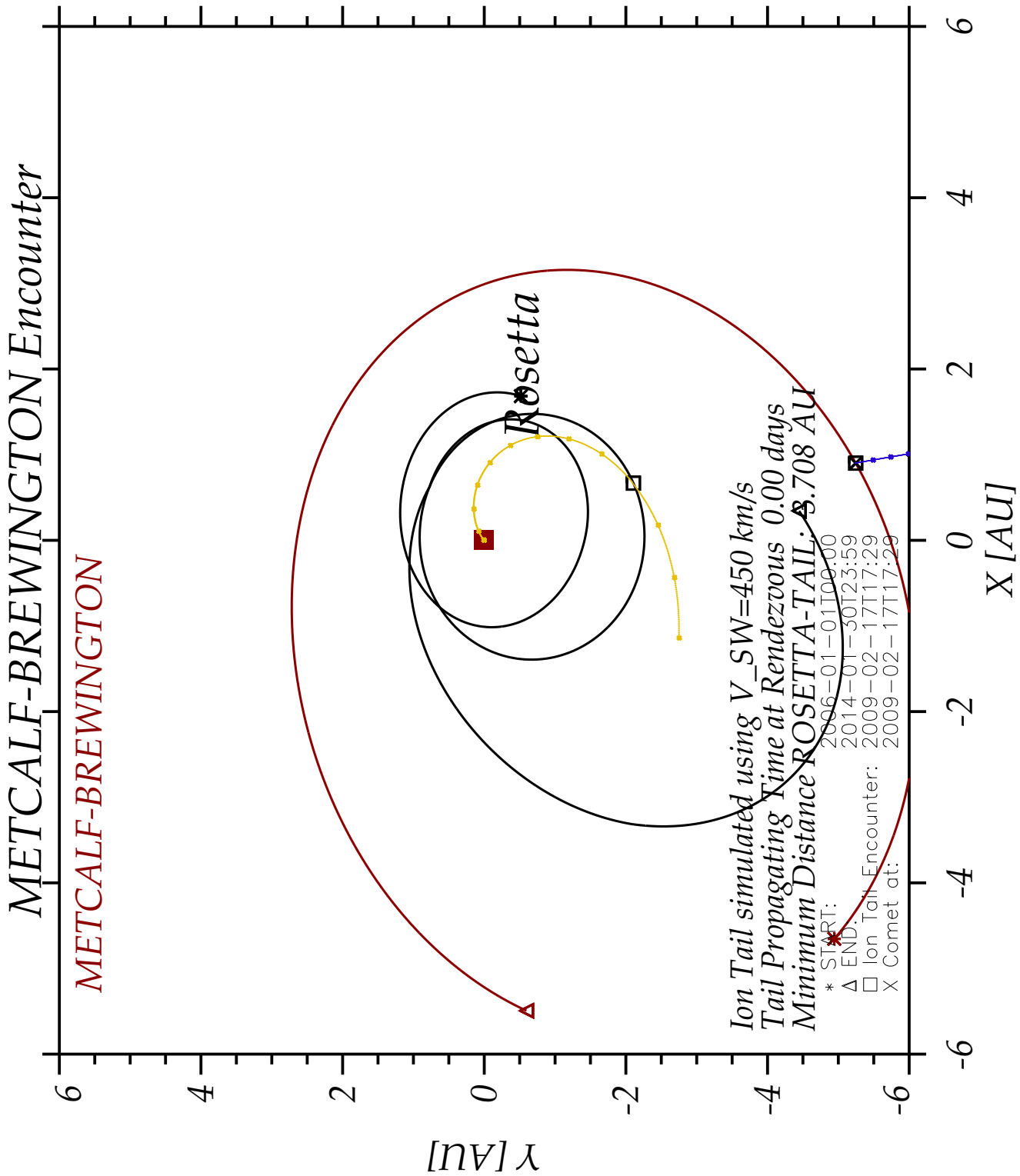


Figure 198: Overview: ROSETTA - METCALF-BREWINGTON

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## 102 Comet 98P/TAKAMIZAWA

Comet: 98P/TAKAMIZAWA
No Encounter below 0.2000AU

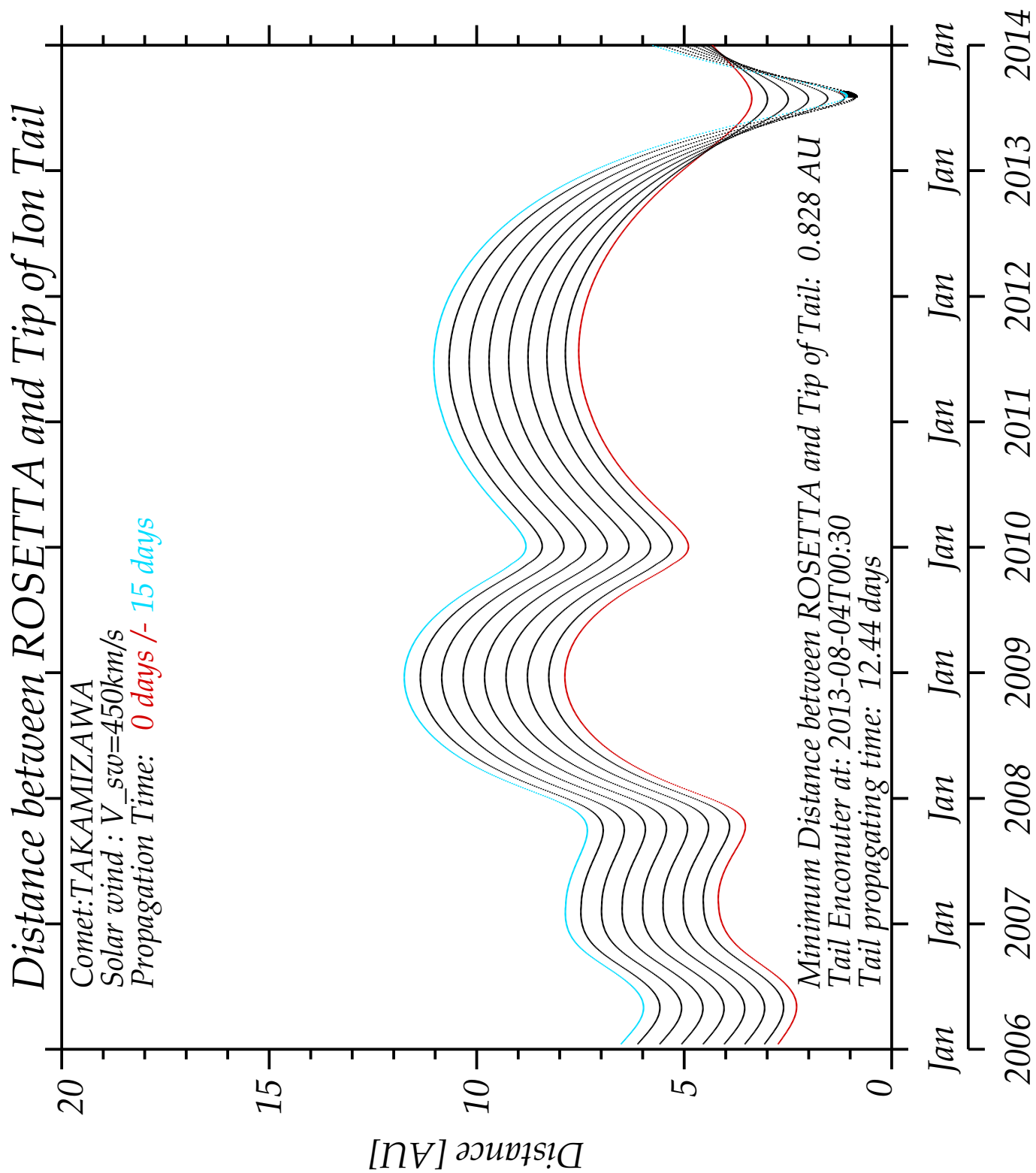


Figure 199: Minimum Distances: ROSETTA - TAKAMIZAWA

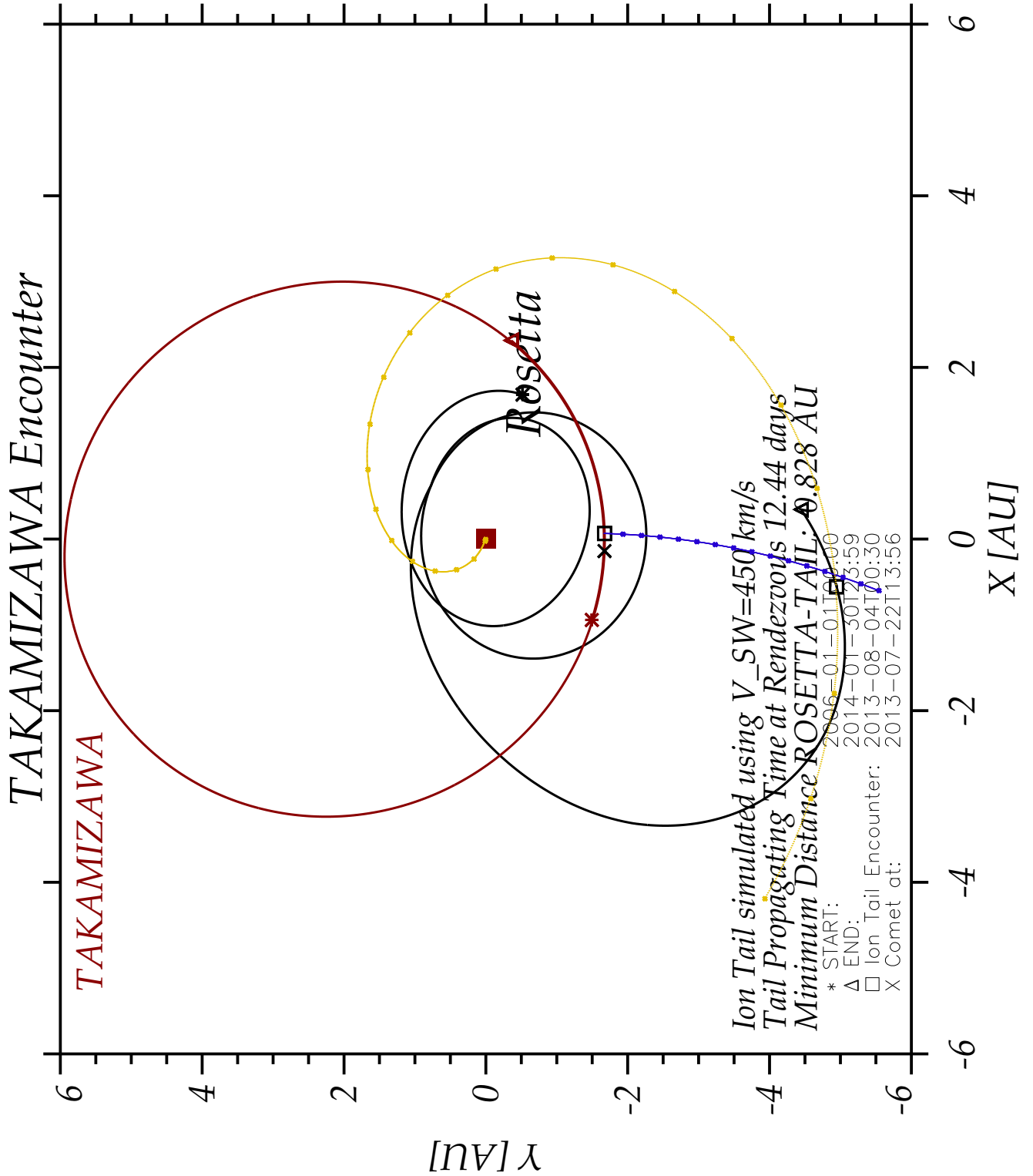


Figure 200: Overview: ROSETTA - TAKAMIZAWA

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## 103 Comet 99P/KOWAL 1

<b>Comet: 99P/KOWAL 1</b>
<b>No Encounter below 0.2000AU</b>

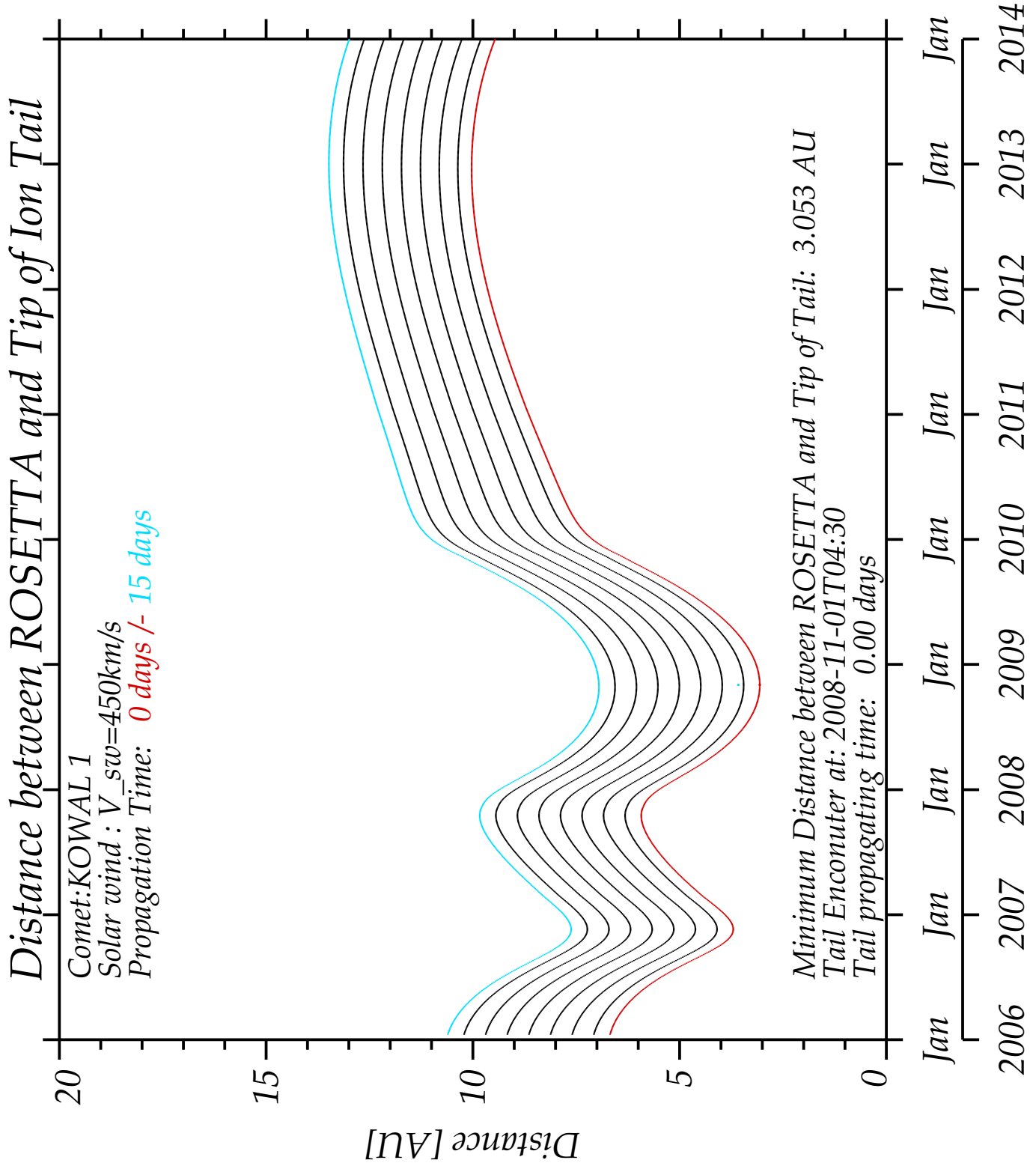


Figure 201: Minimum Distances: ROSETTA - KOWAL 1



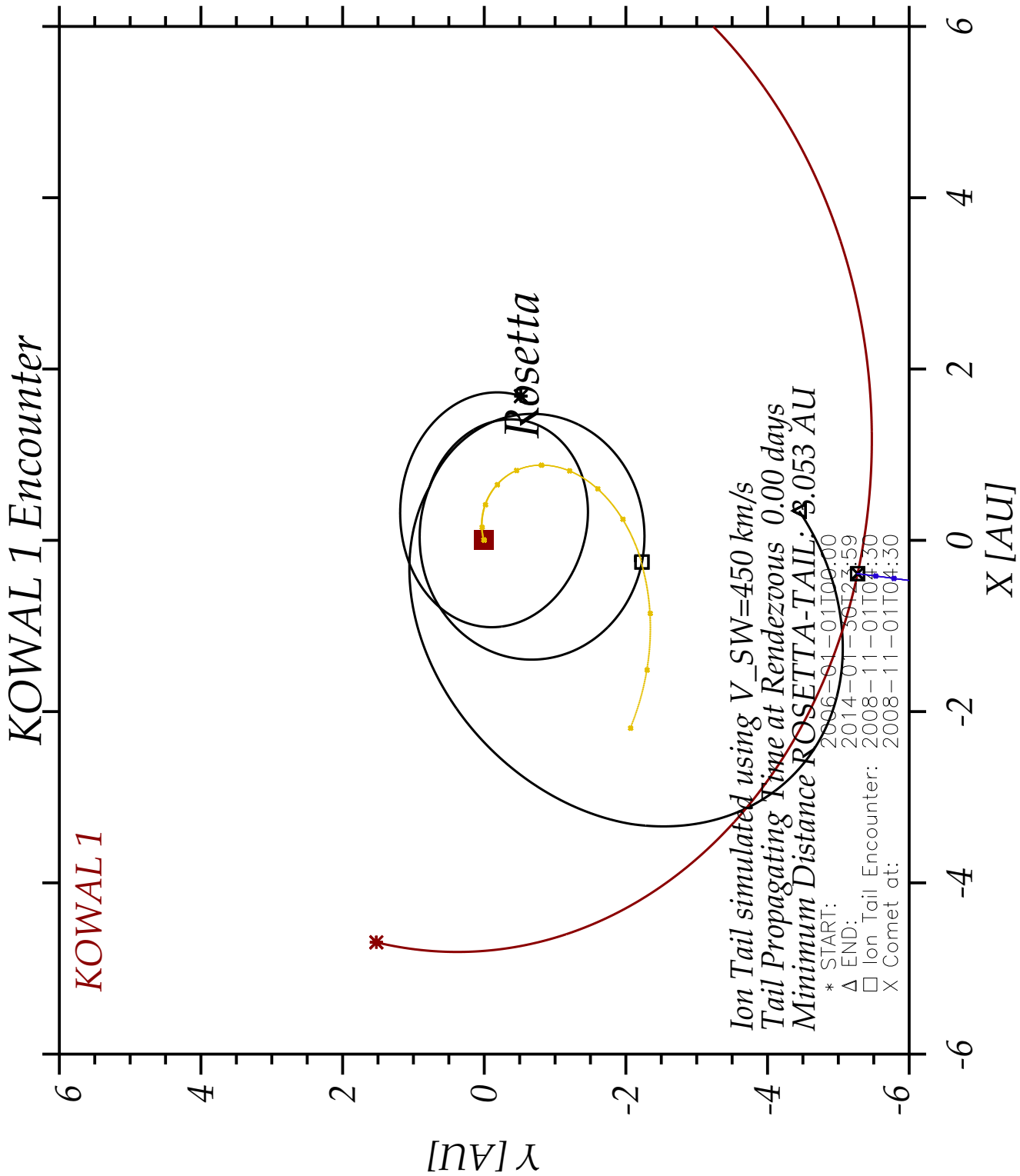


Figure 202: Overview: ROSETTA - KOWAL 1

<p style="text-align: center;">R O S E T T A</p>	<p>Document: RO-IGEP-TR-0020 Issue: 1 Revision: 2</p>
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## 104 Comet 100/HARTLEY 1

<p><b>Comet: 100/HARTLEY 1</b></p>
<p><b>No Encounter below 0.2000AU</b></p>

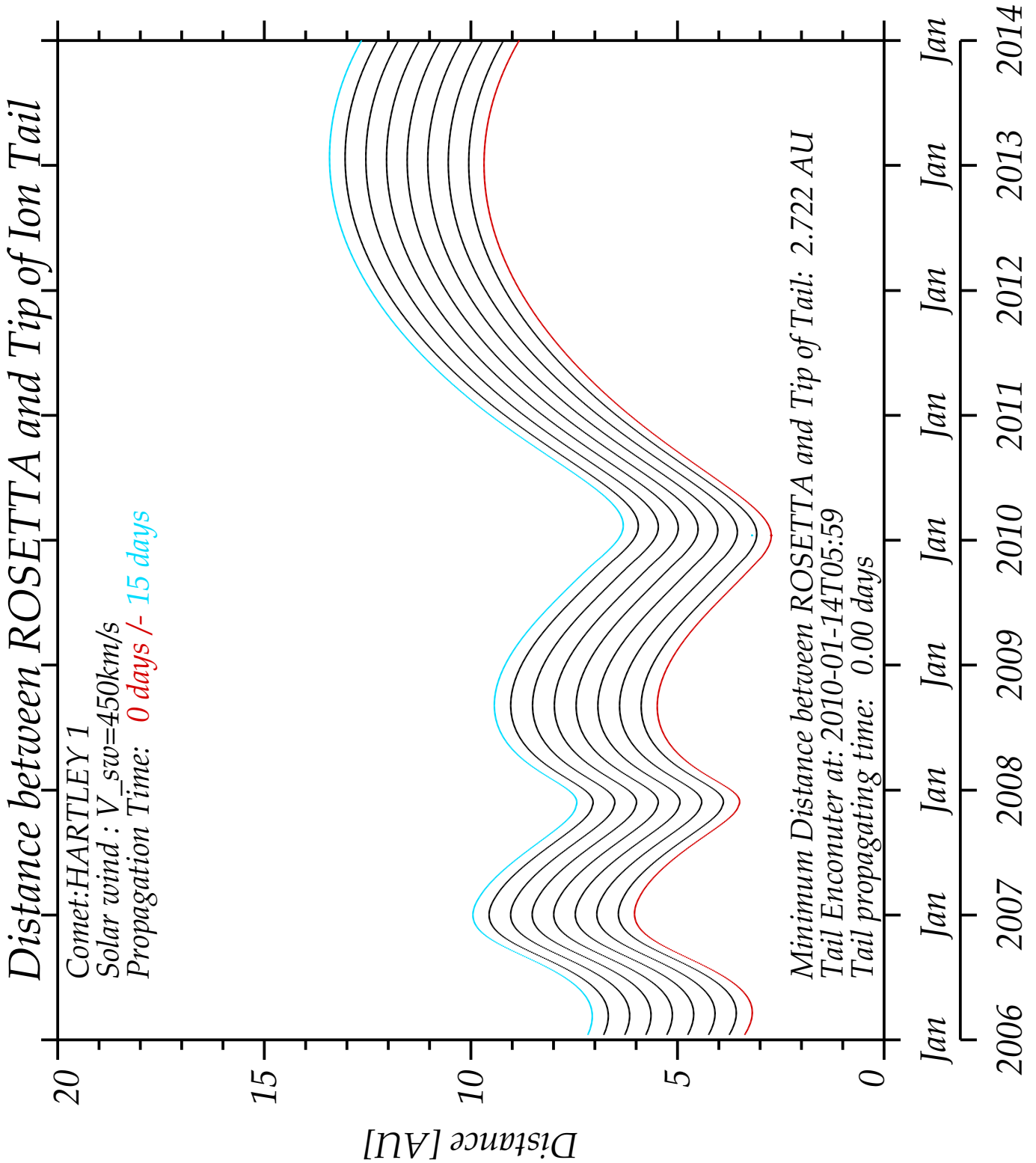


Figure 203: Minimum Distances: ROSETTA - HARTLEY 1

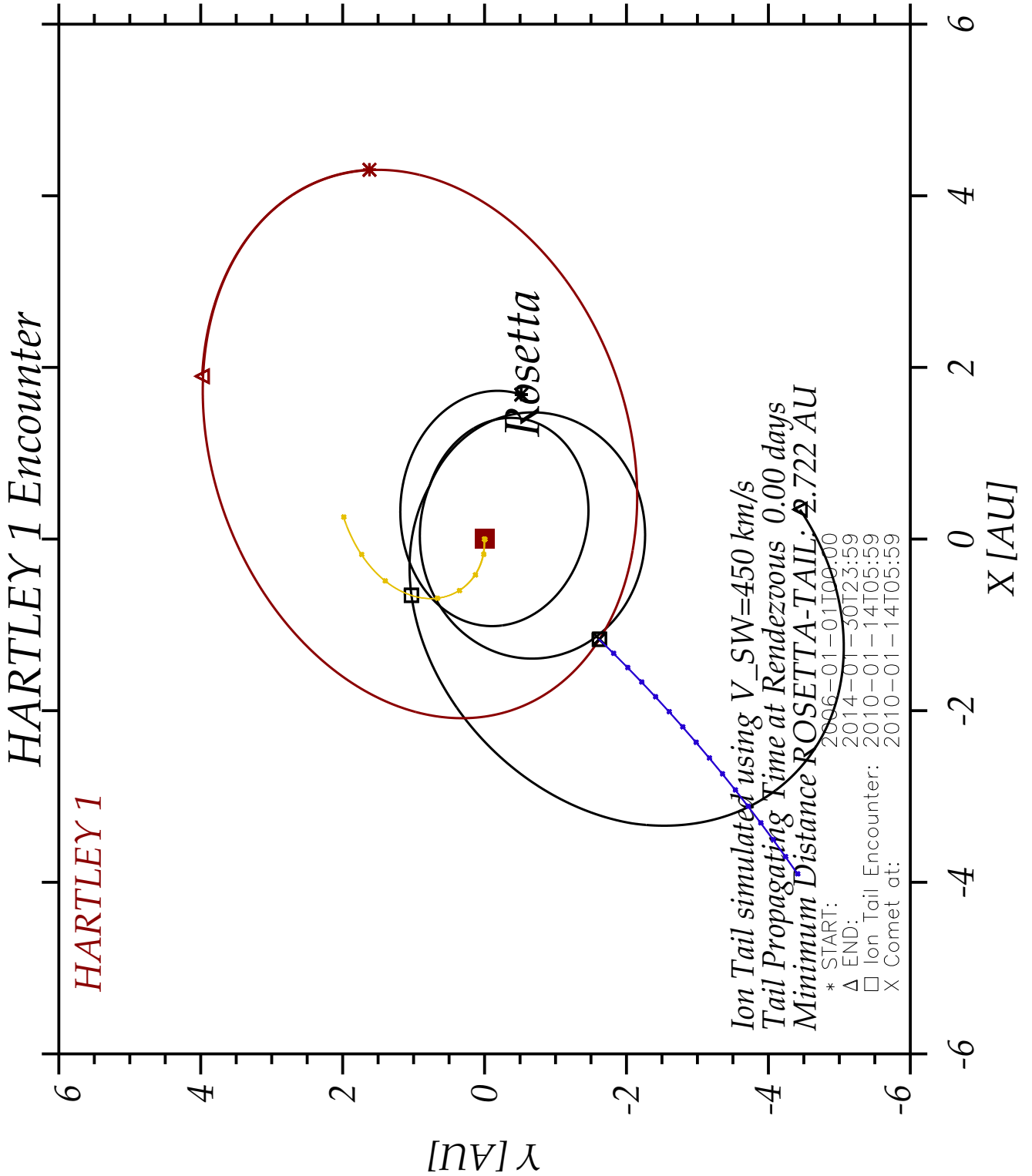


Figure 204: Overview: ROSETTA - HARTLEY 1

<p style="text-align: center;">R O S E T T A</p>	<p>Document: RO-IGEP-TR-0020  Issue: 1  Revision: 2  Date: 2006-10-25  Page: 308</p>
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## 105 Comet 101P/CHERNYKH

<p><b>Comet: 101P/CHERNYKH</b></p>
<p><b>No Encounter below 0.2000AU</b></p>

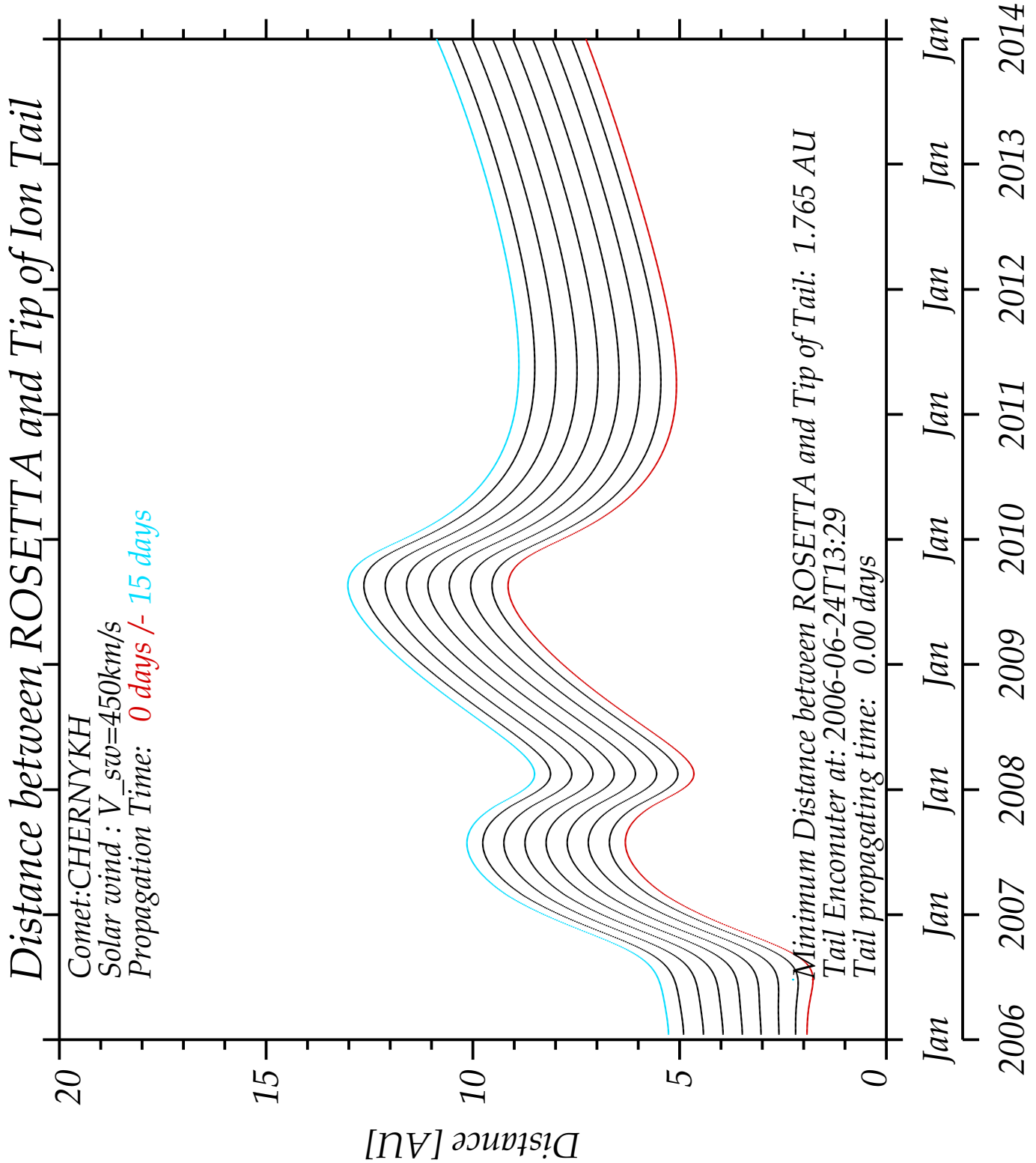


Figure 205: Minimum Distances: ROSETTA - CHERNYKH

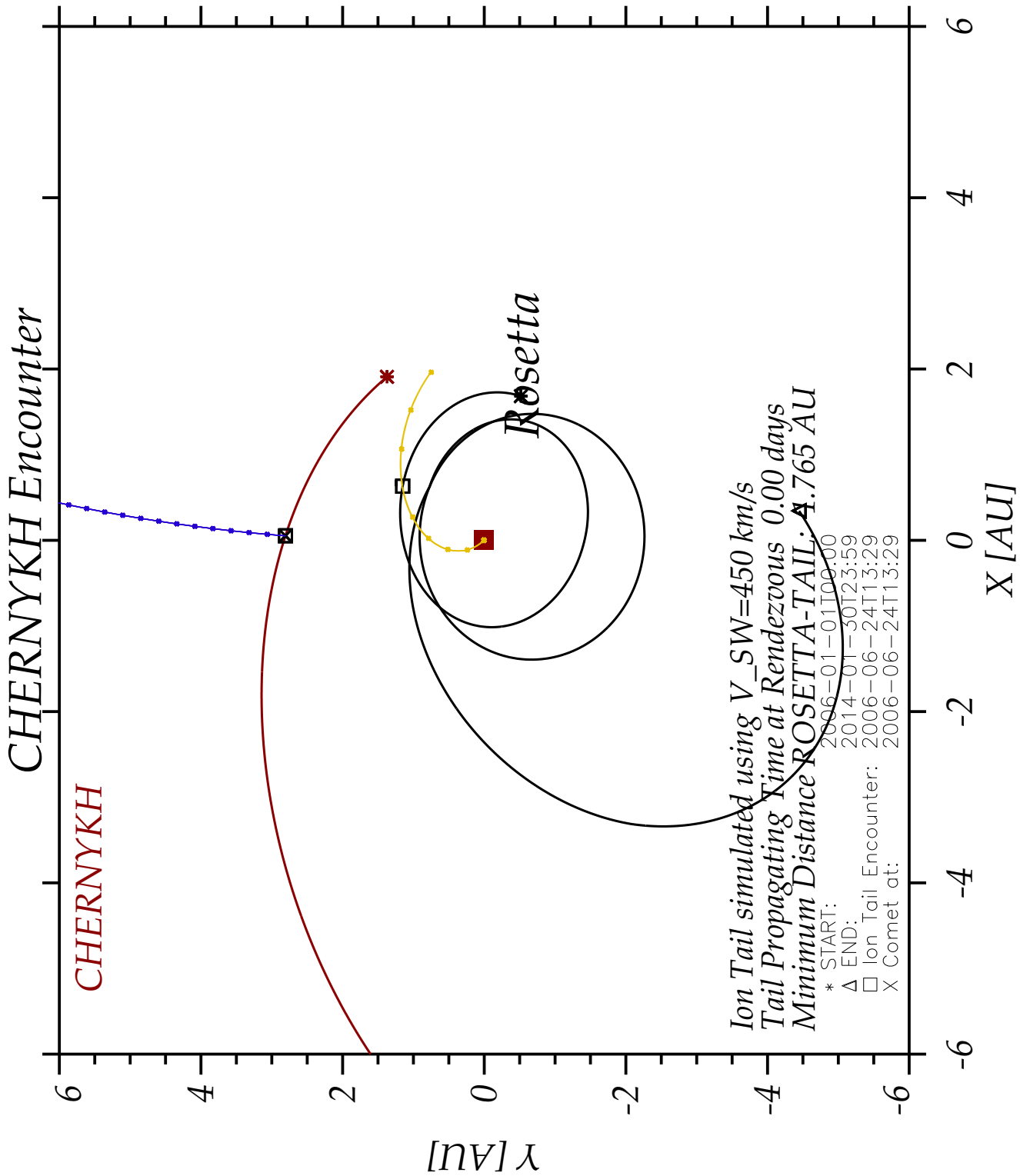


Figure 206: Overview: ROSETTA - CHERNYKH

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## 106 Comet 101P-B/CHERNYKH-B

<b>Comet: 101P-B/CHERNYKH-B</b>
<b>No Encounter below 0.2000AU</b>



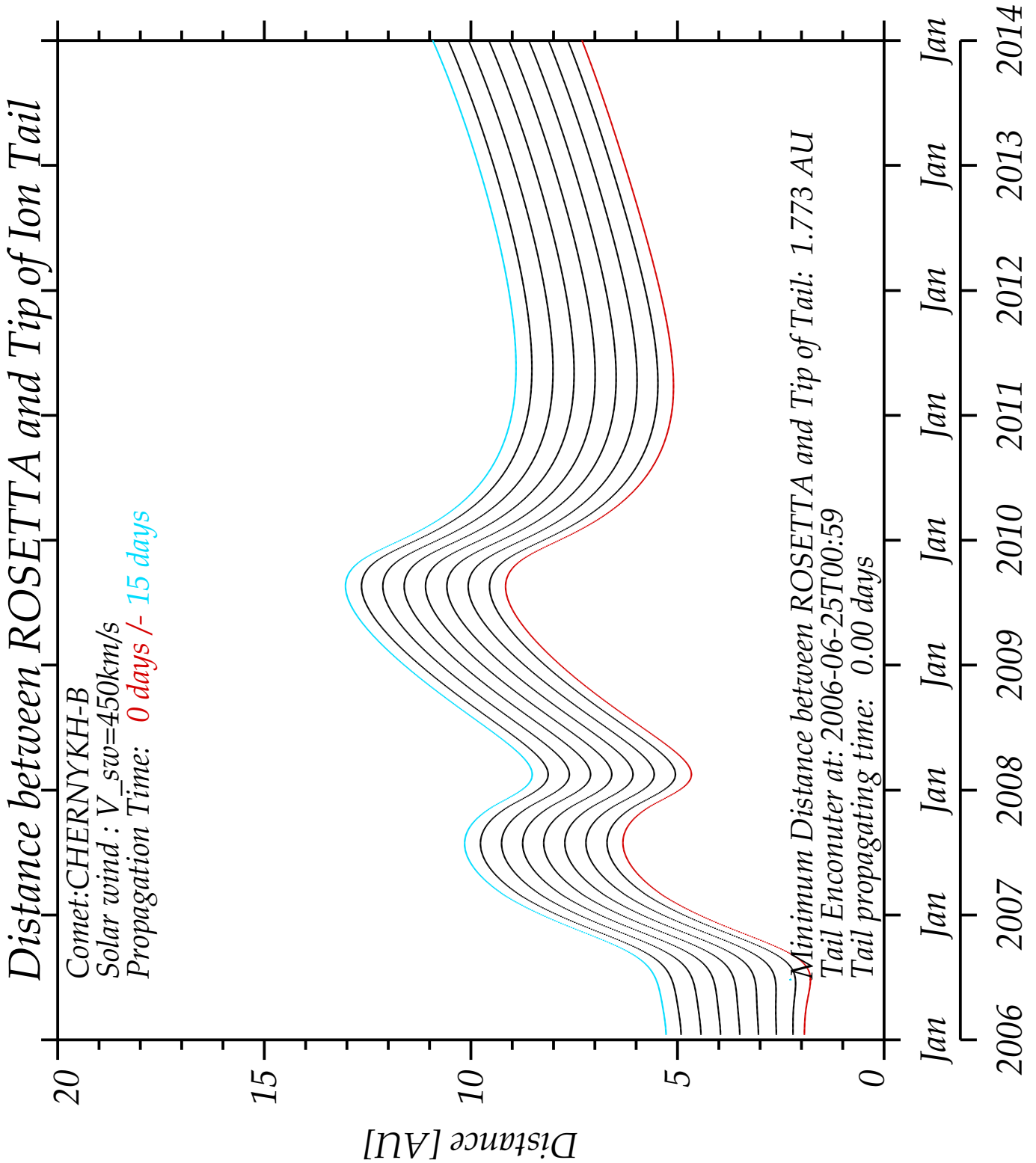


Figure 207: Minimum Distances: ROSETTA - CHERNYKH-B

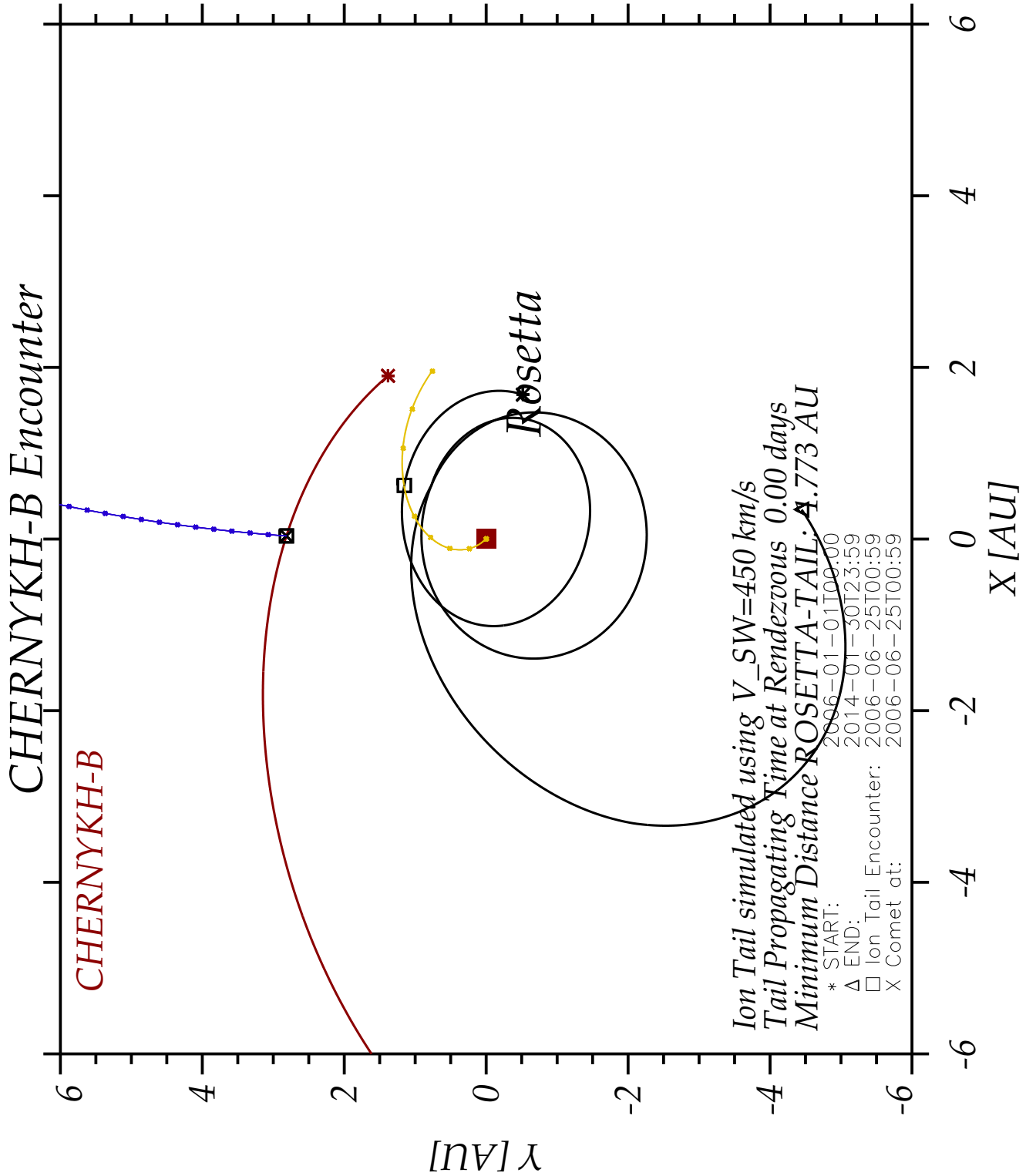


Figure 208: Overview: ROSETTA - CHERNYKH-B

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## 107 Comet 102P/SHOEMAKER 1

<b>Comet: 102P/SHOEMAKER 1</b>
<b>No Encounter below 0.2000AU</b>

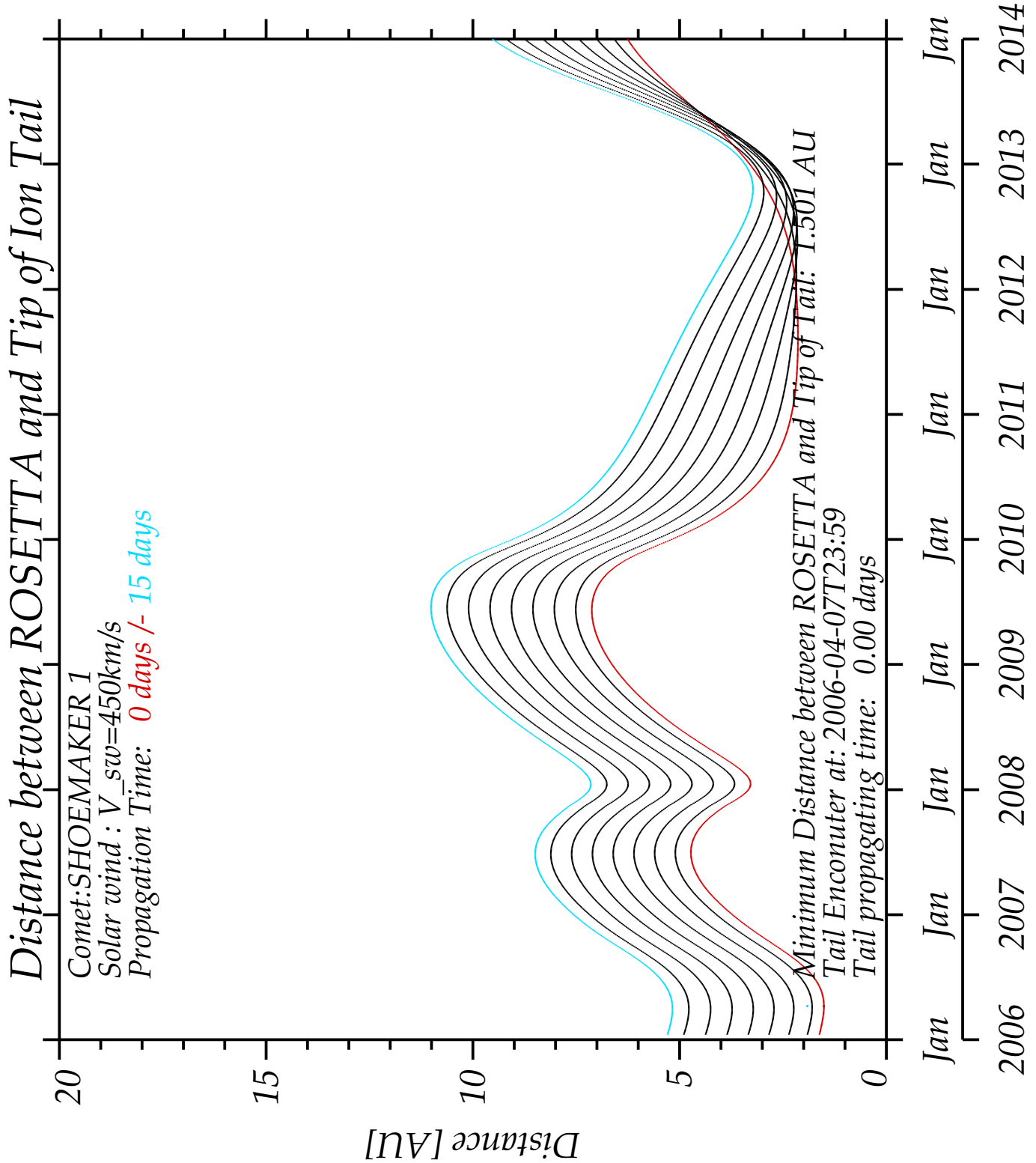


Figure 209: Minimum Distances: ROSETTA - SHOEMAKER 1

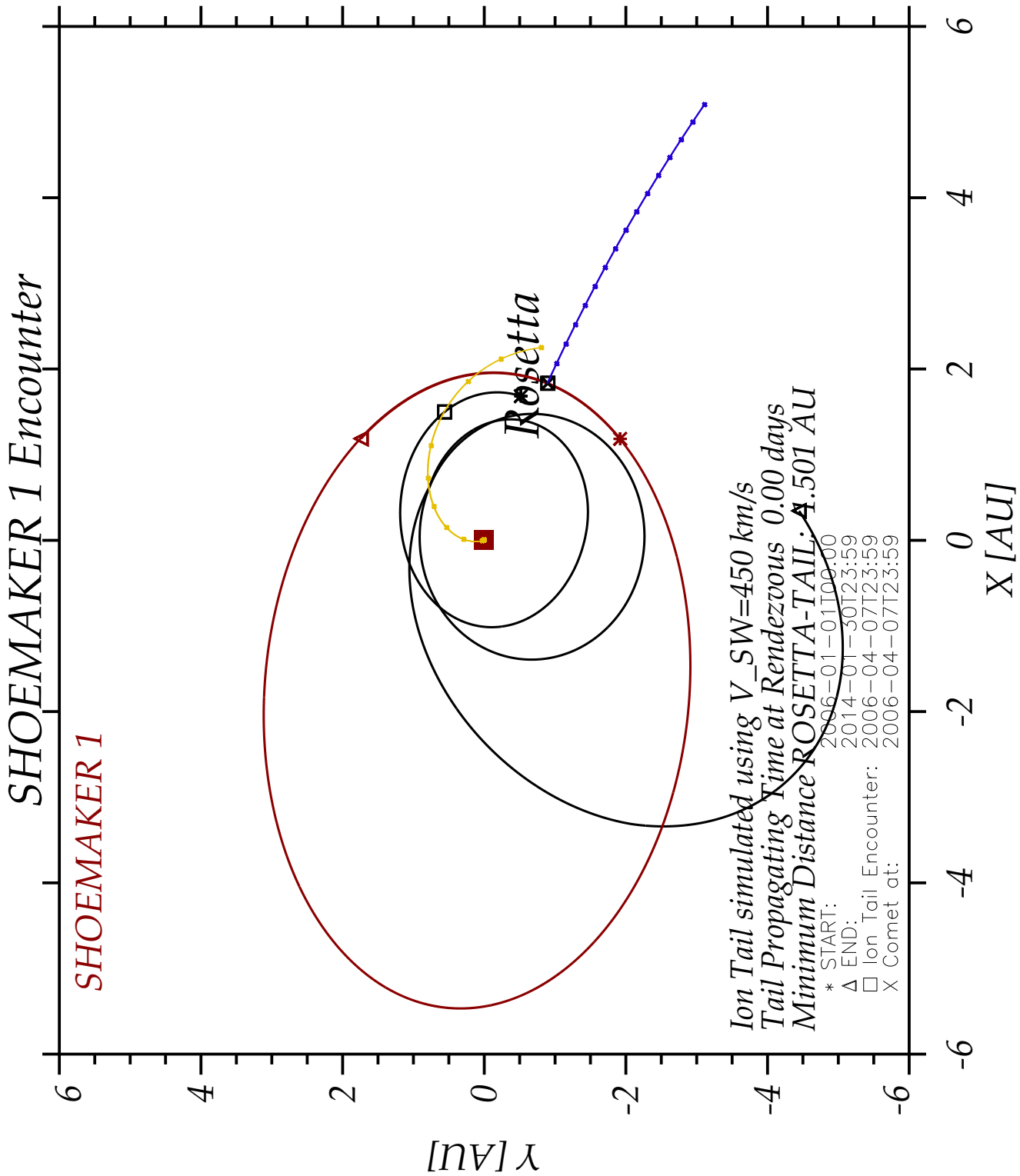


Figure 210: Overview: ROSETTA - SHOEMAKER 1

<p style="text-align: center;">R O S E T T A</p>	<p>Document: RO-IGEP-TR-0020  Issue: 1  Revision: 2</p>
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**108 Comet 103P/HARTLEY 2**

<p><b>Comet: 103P/HARTLEY 2</b></p>
<p><b>No Encounter below 0.2000AU</b></p>

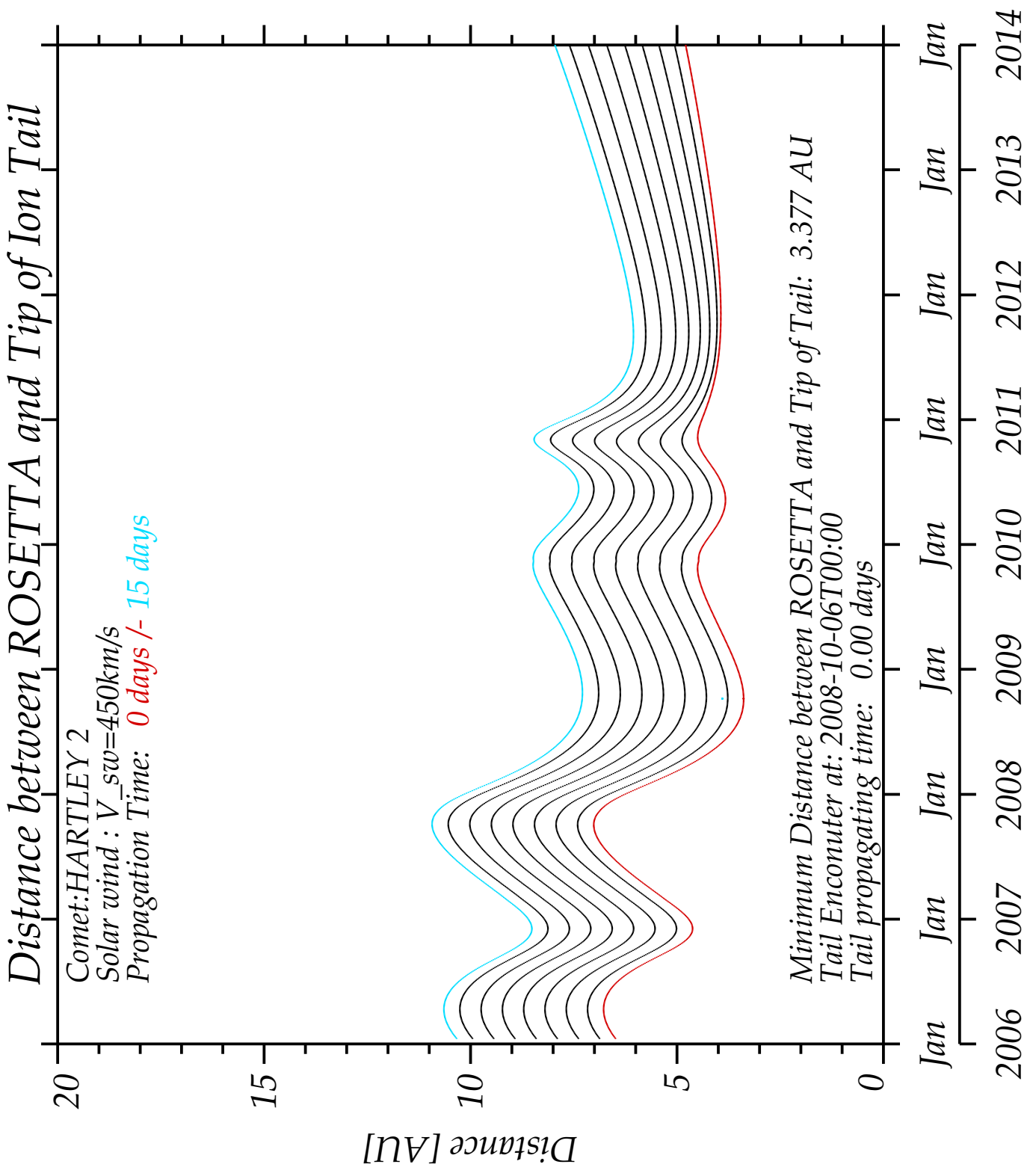


Figure 211: Minimum Distances: ROSETTA - HARTLEY 2

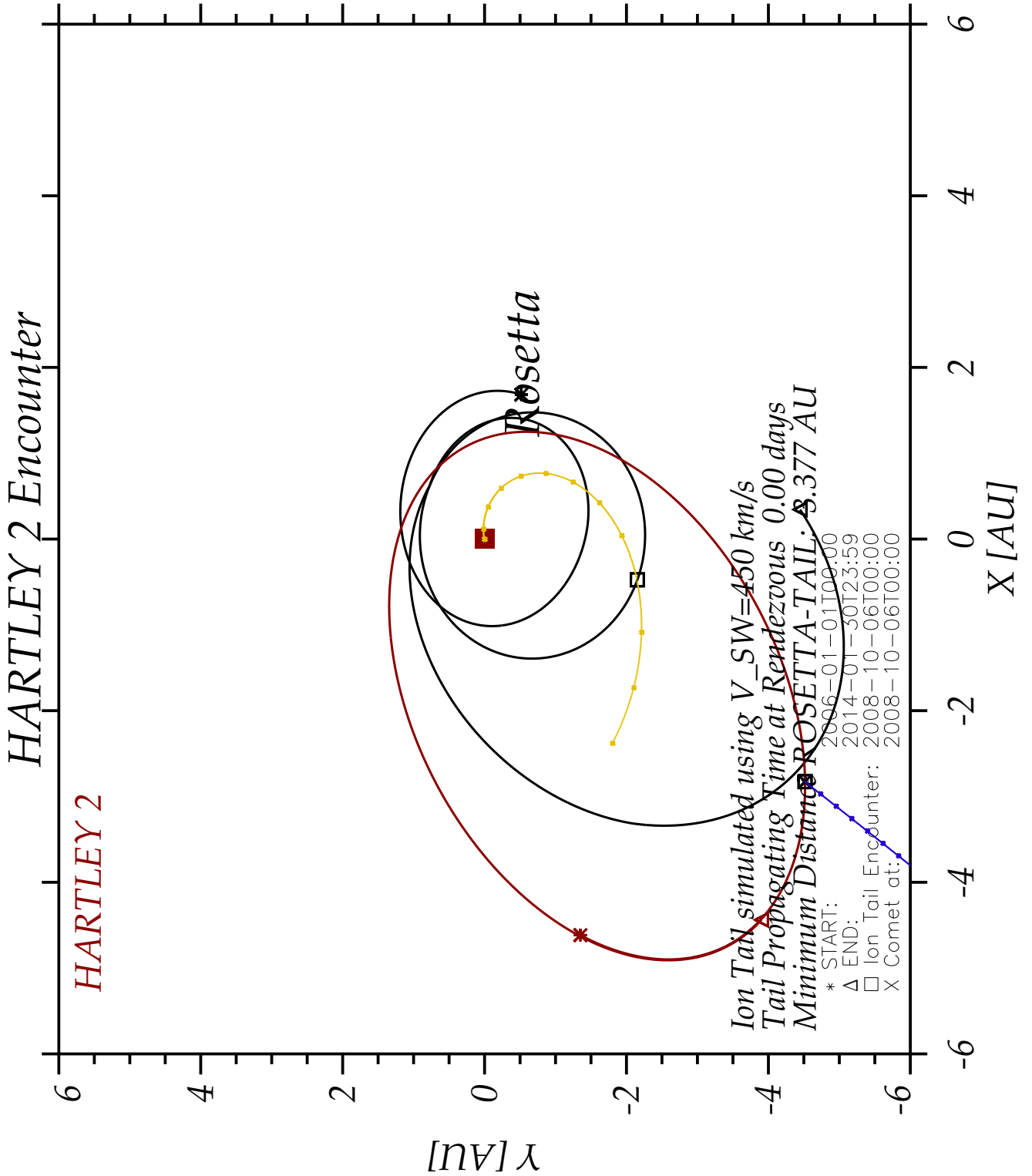


Figure 212: Overview: ROSETTA - HARTLEY 2



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## 109 Comet 104P/KOWAL 2

<b>Comet: 104P/KOWAL 2</b>
<b>No Encounter below 0.2000AU</b>

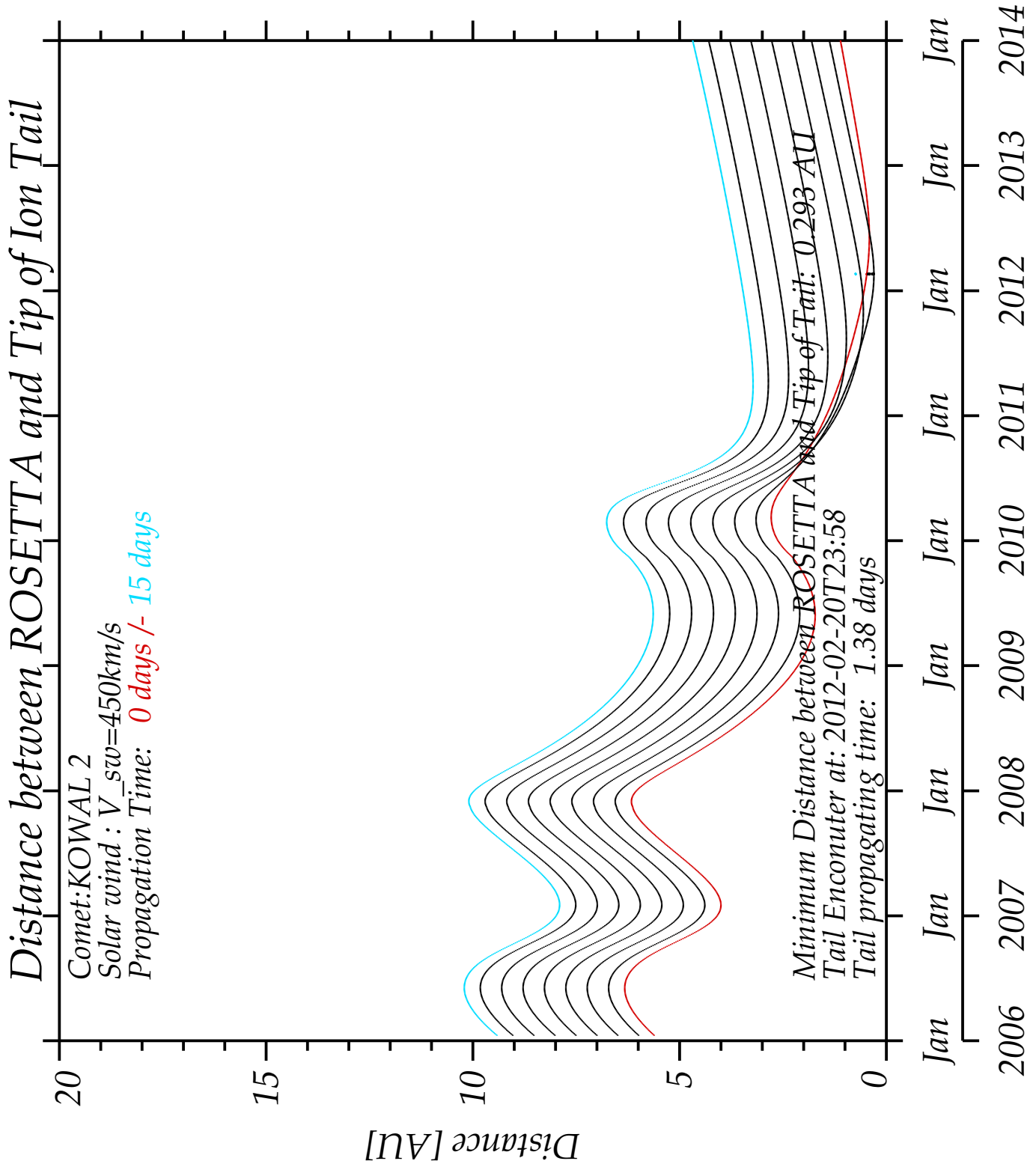


Figure 213: Minimum Distances: ROSETTA - KOWAL 2

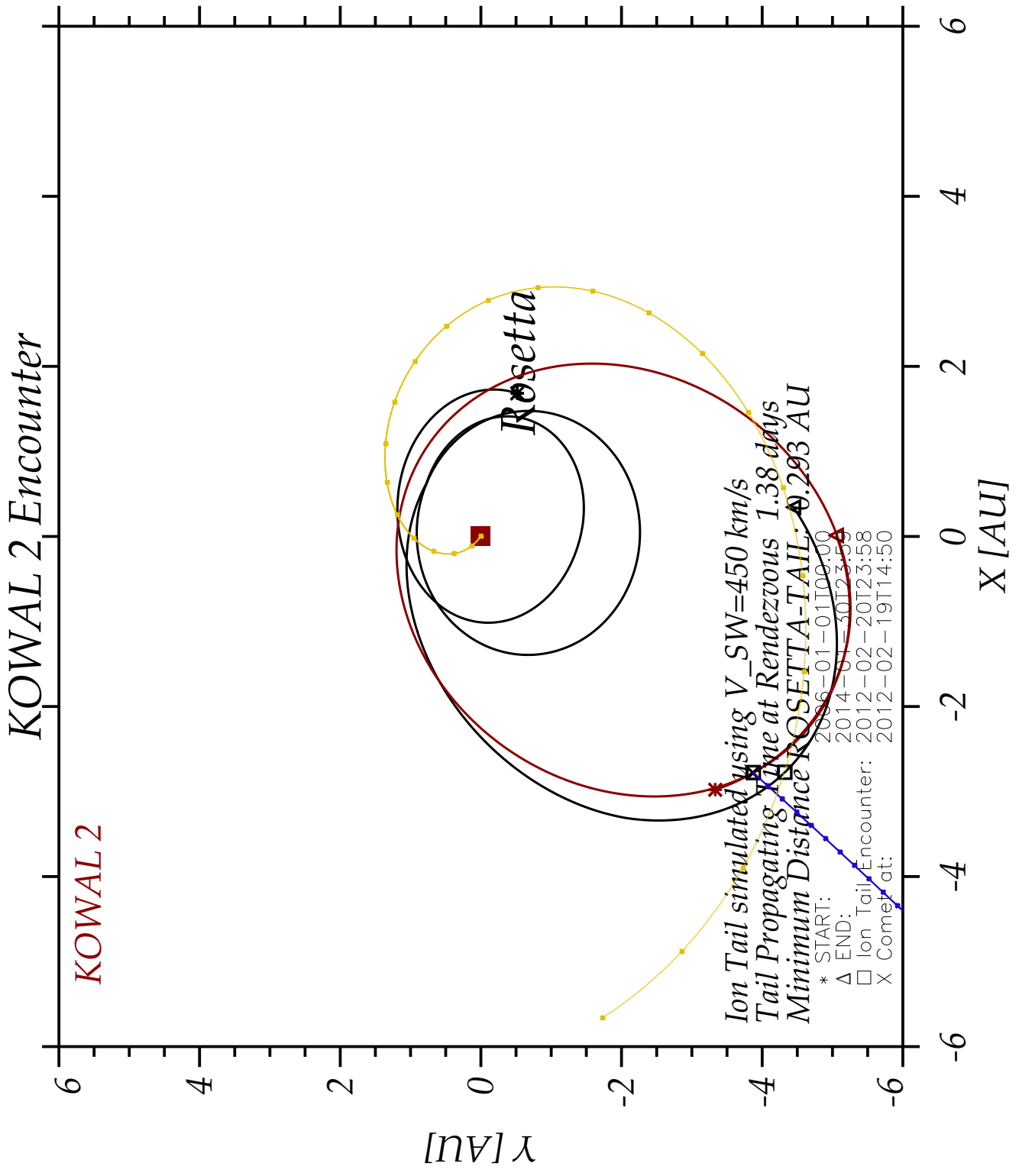


Figure 214: Overview: ROSETTA - KOWAL 2

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**110 Comet 105P/SINGER-BREWSTER**

<b>Comet: 105P/SINGER-BREWSTER</b>
<b>No Encounter below 0.2000AU</b>

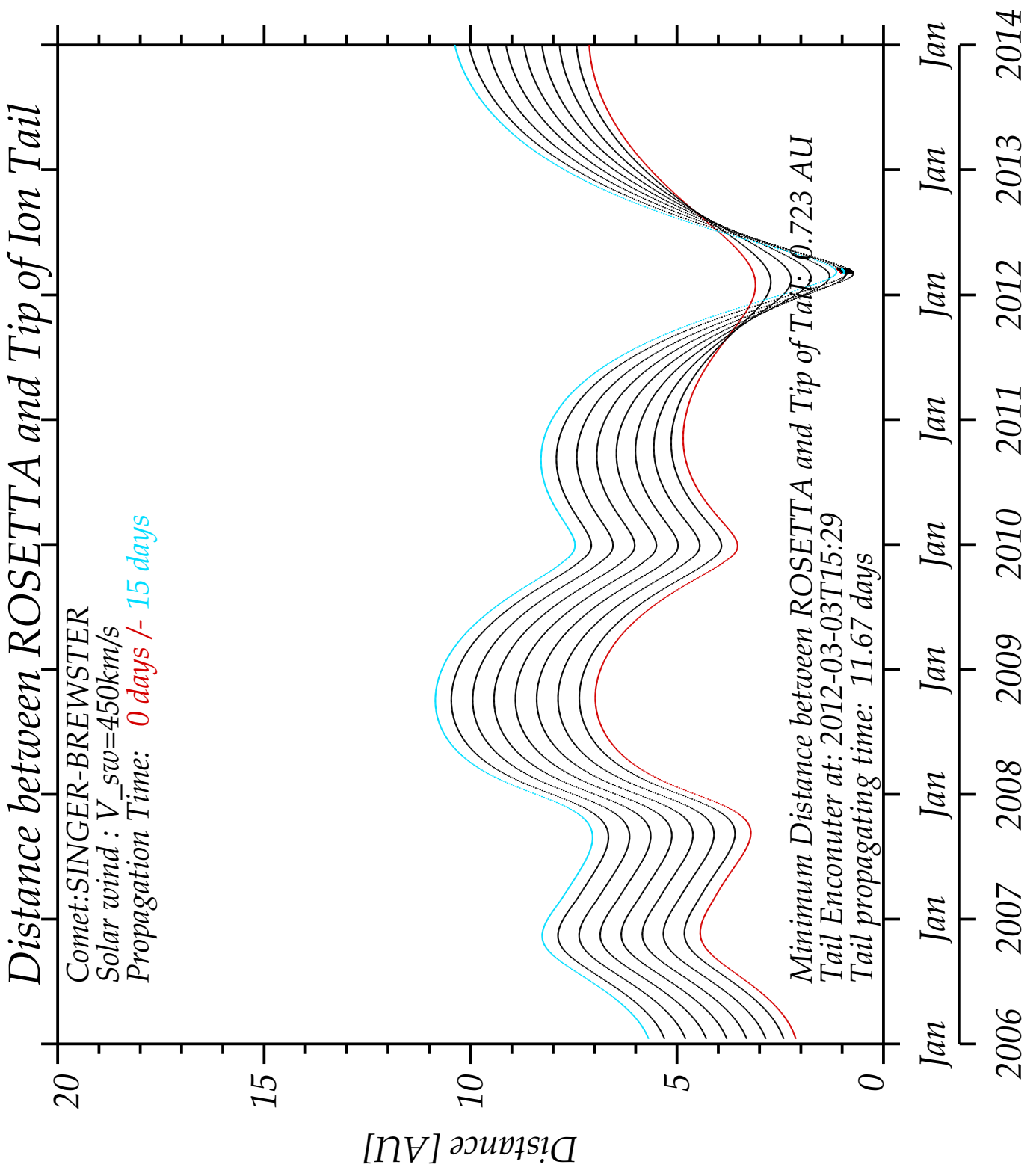


Figure 215: Minimum Distances: ROSETTA - SINGER-BREWSTER

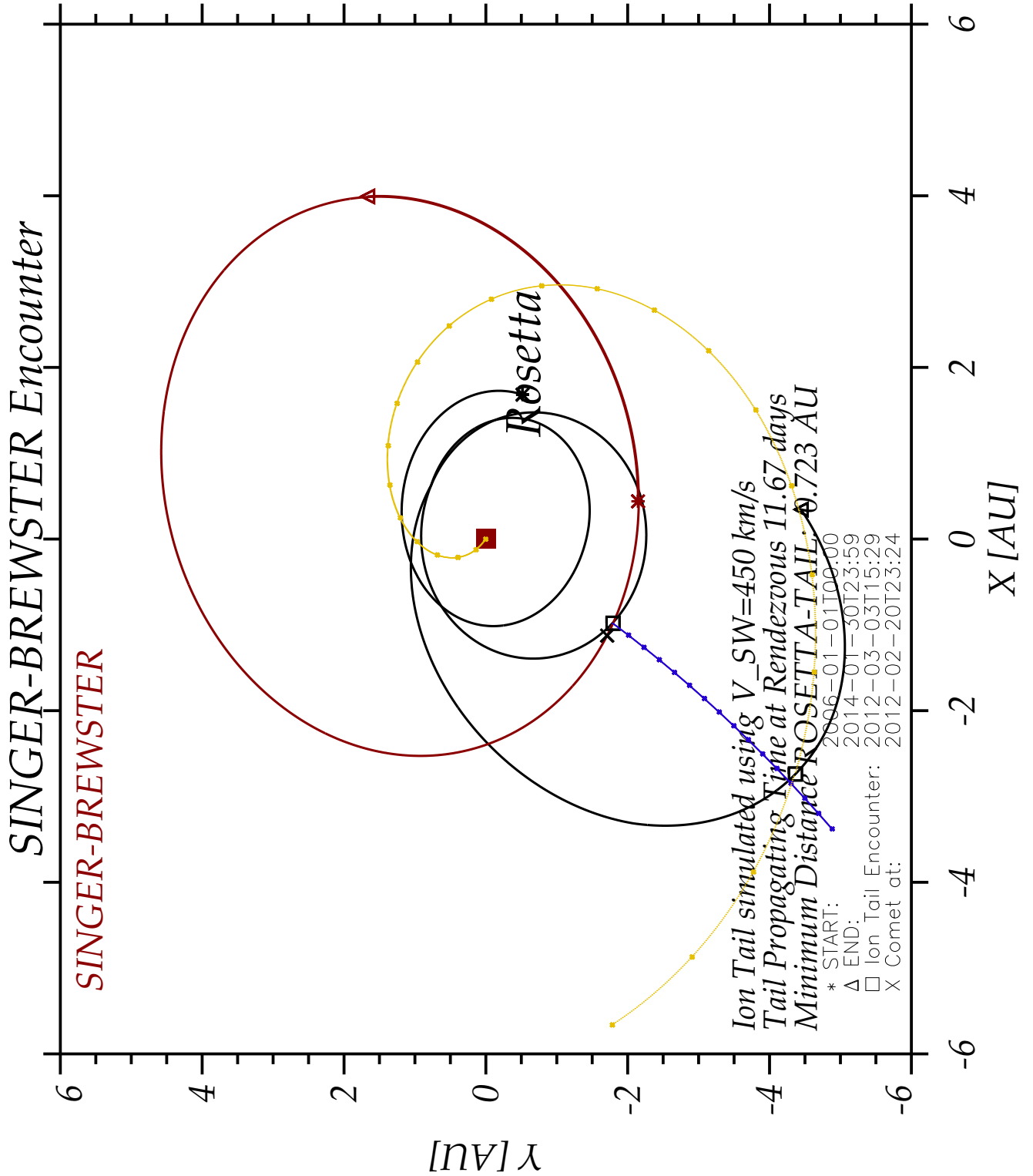


Figure 216: Overview: ROSETTA - SINGER-BREWSTER

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## 111 Comet 106P/SCHUSTER

<b>Comet: 106P/SCHUSTER</b>
<b>No Encounter below 0.2000AU</b>

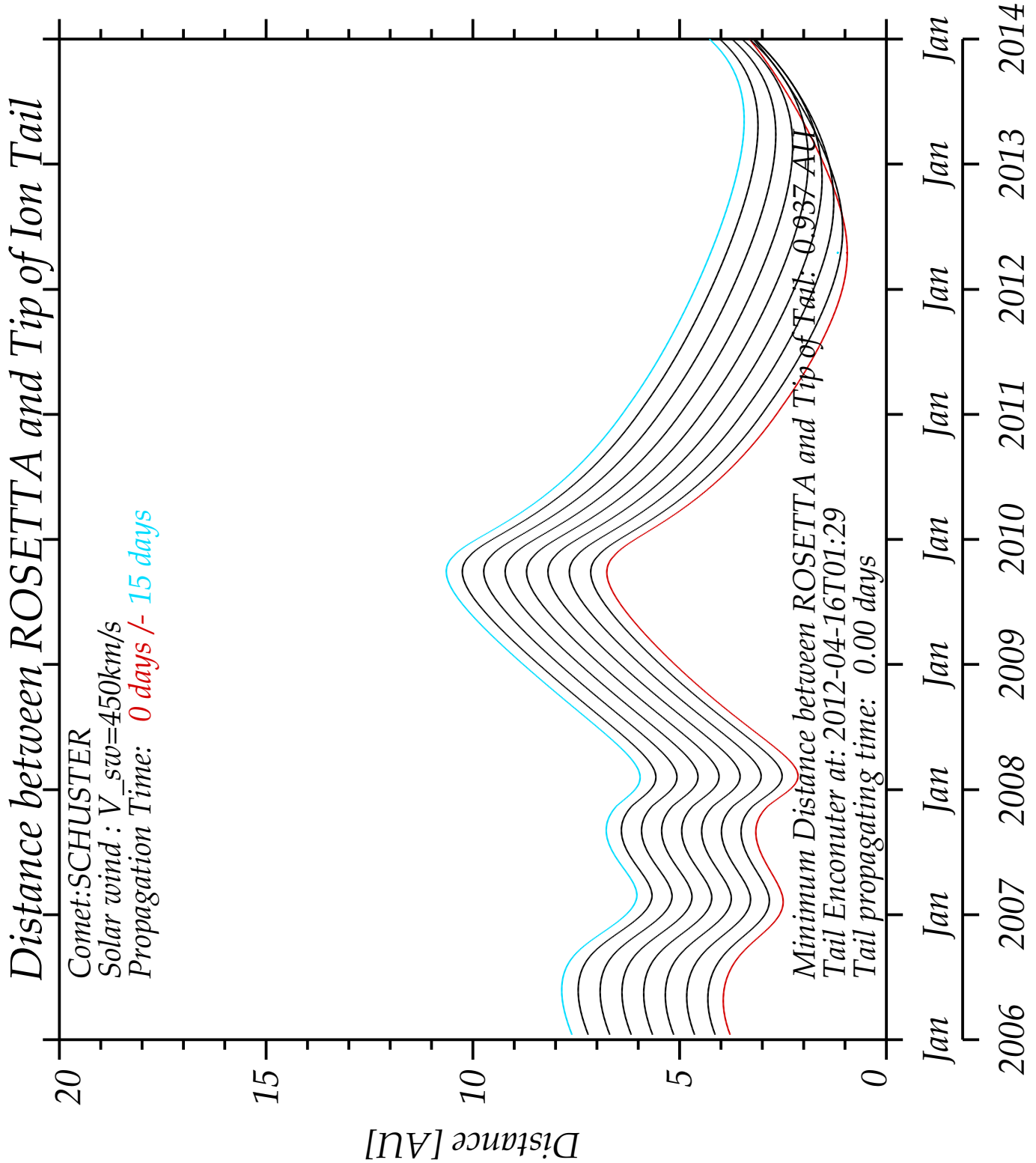


Figure 217: Minimum Distances: ROSETTA - SCHUSTER



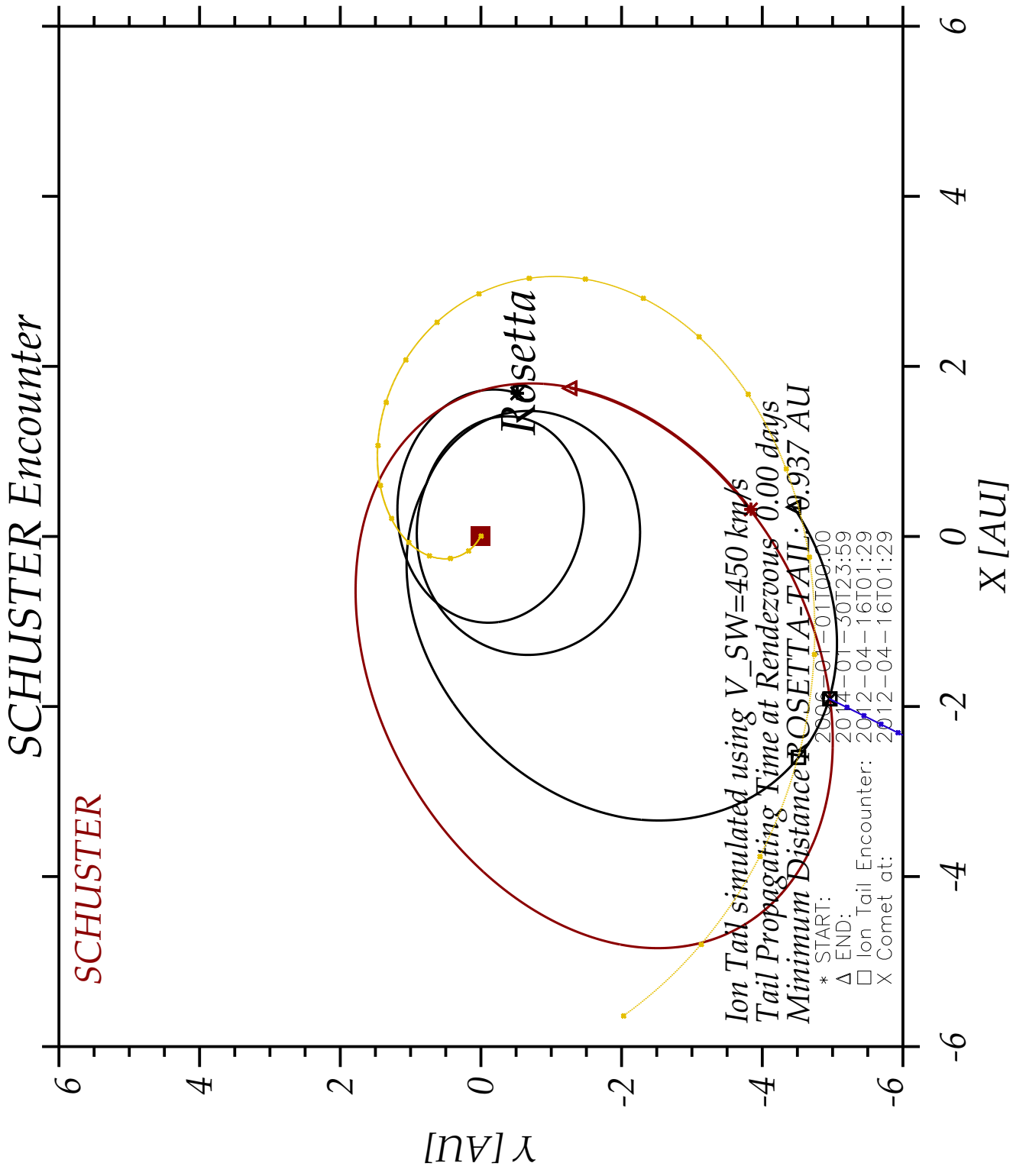


Figure 218: Overview: ROSETTA - SCHUSTER

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## 112 Comet 107P/WILSON-HARRINGTON

<b>Comet: 107P/WILSON-HARRINGTON</b>
<b>No Encounter below 0.2000AU</b>

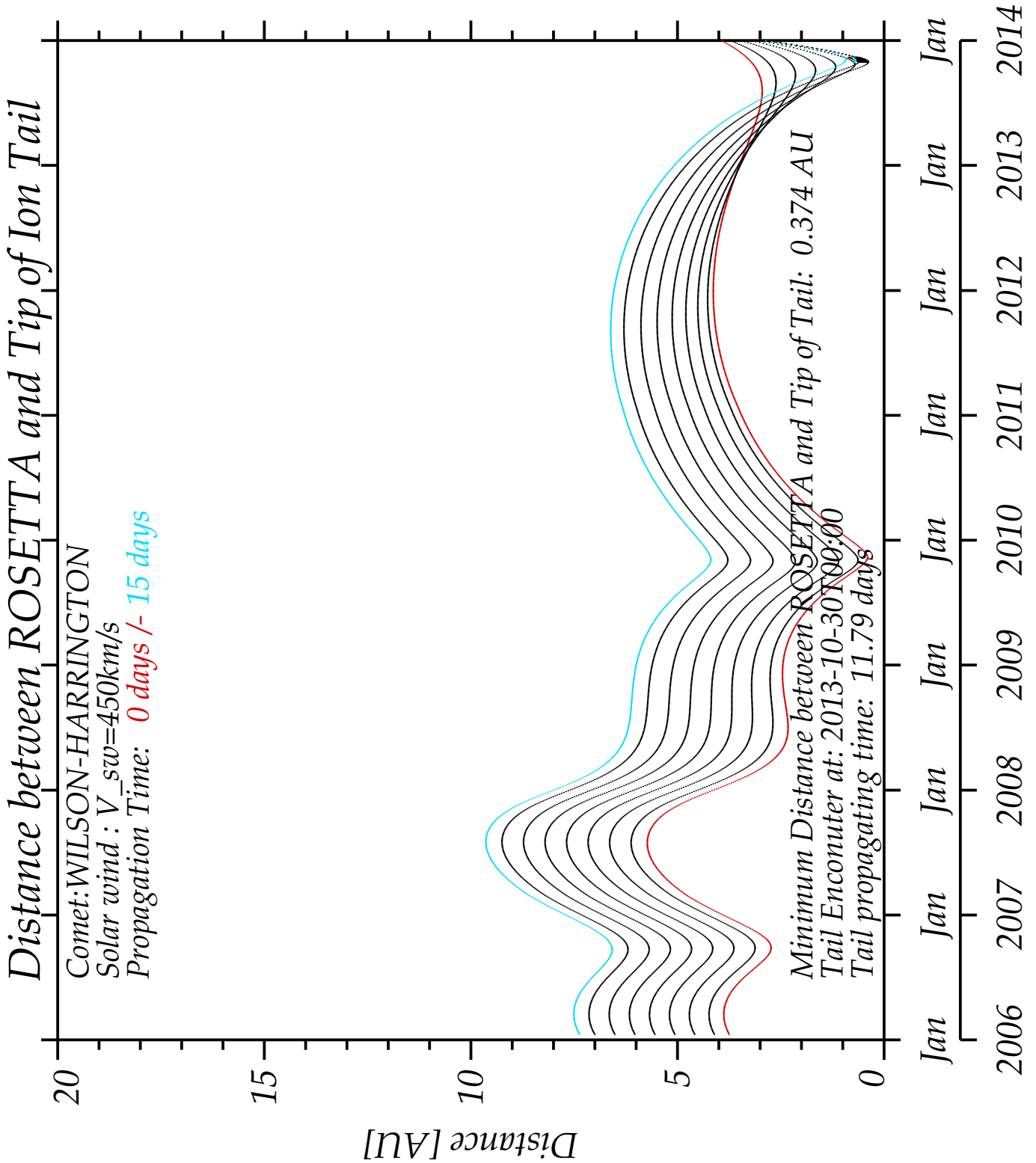


Figure 219: Minimum Distances: ROSETTA - WILSON-HARRINGTON

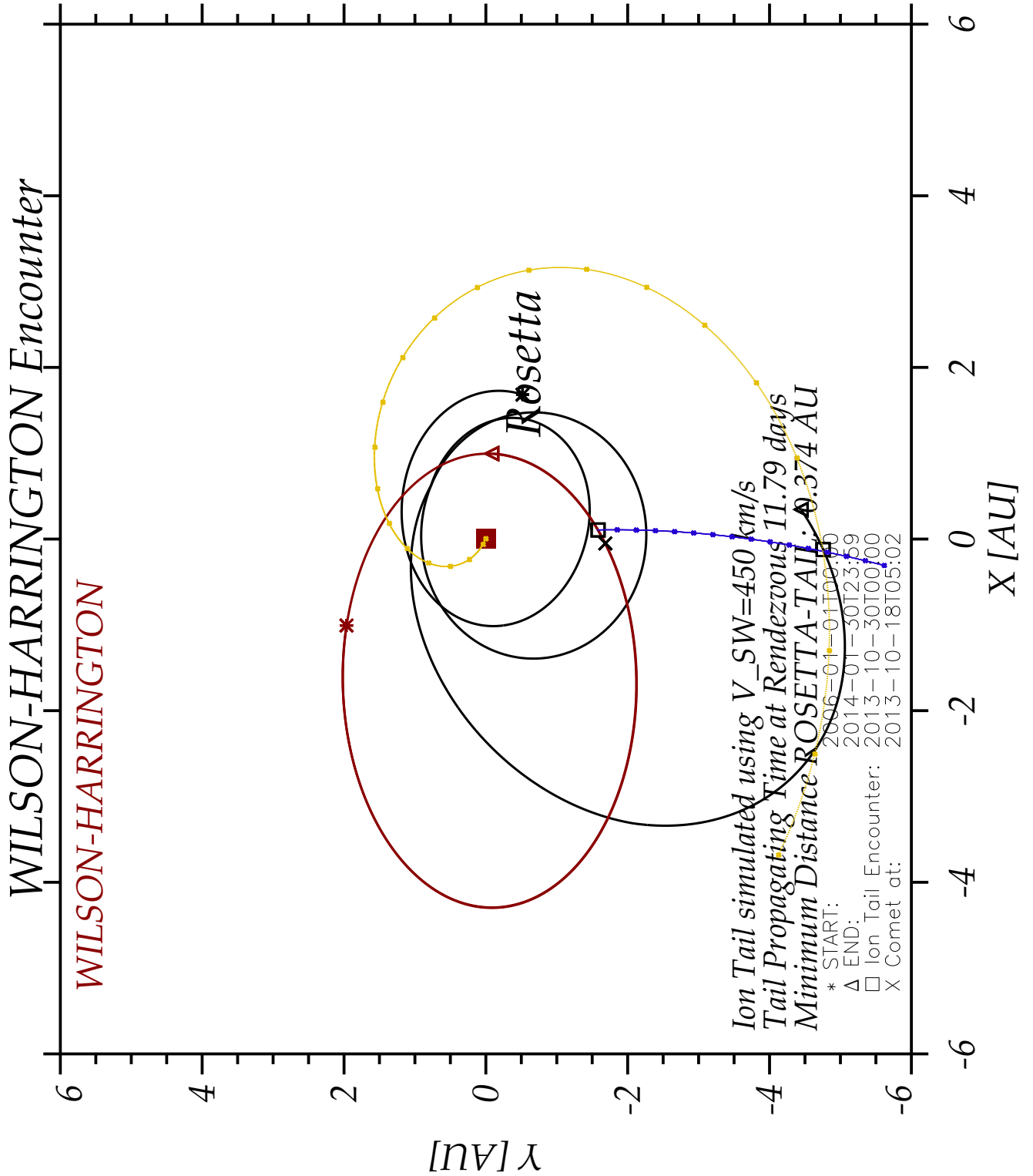


Figure 220: Overview: ROSETTA - WILSON-HARRINGTON

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## 113 Comet 108P/CIFFREO

<b>Comet: 108P/CIFFREO</b>
<b>No Encounter below 0.2000AU</b>

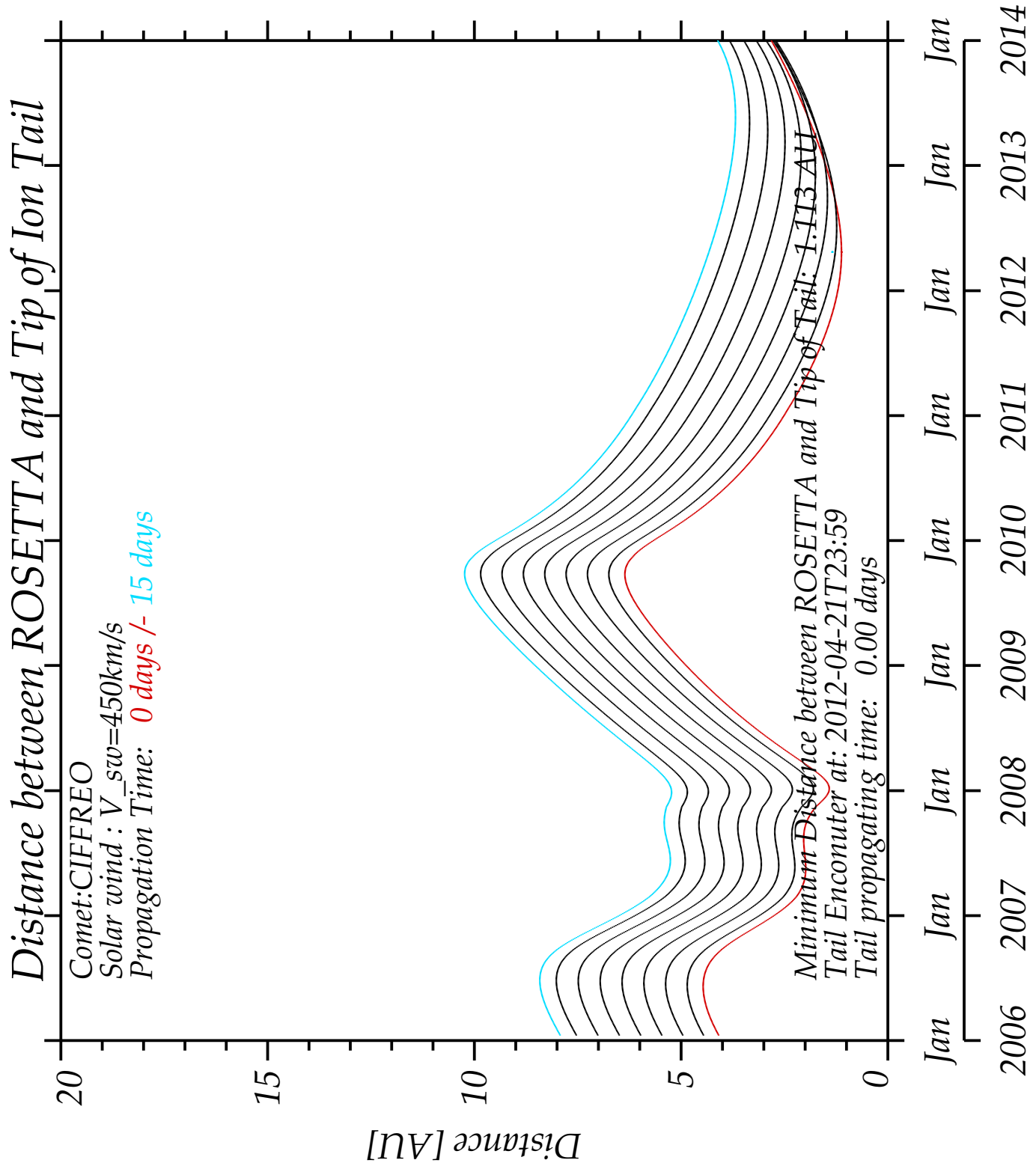


Figure 221: Minimum Distances: ROSETTA - CIFFREO

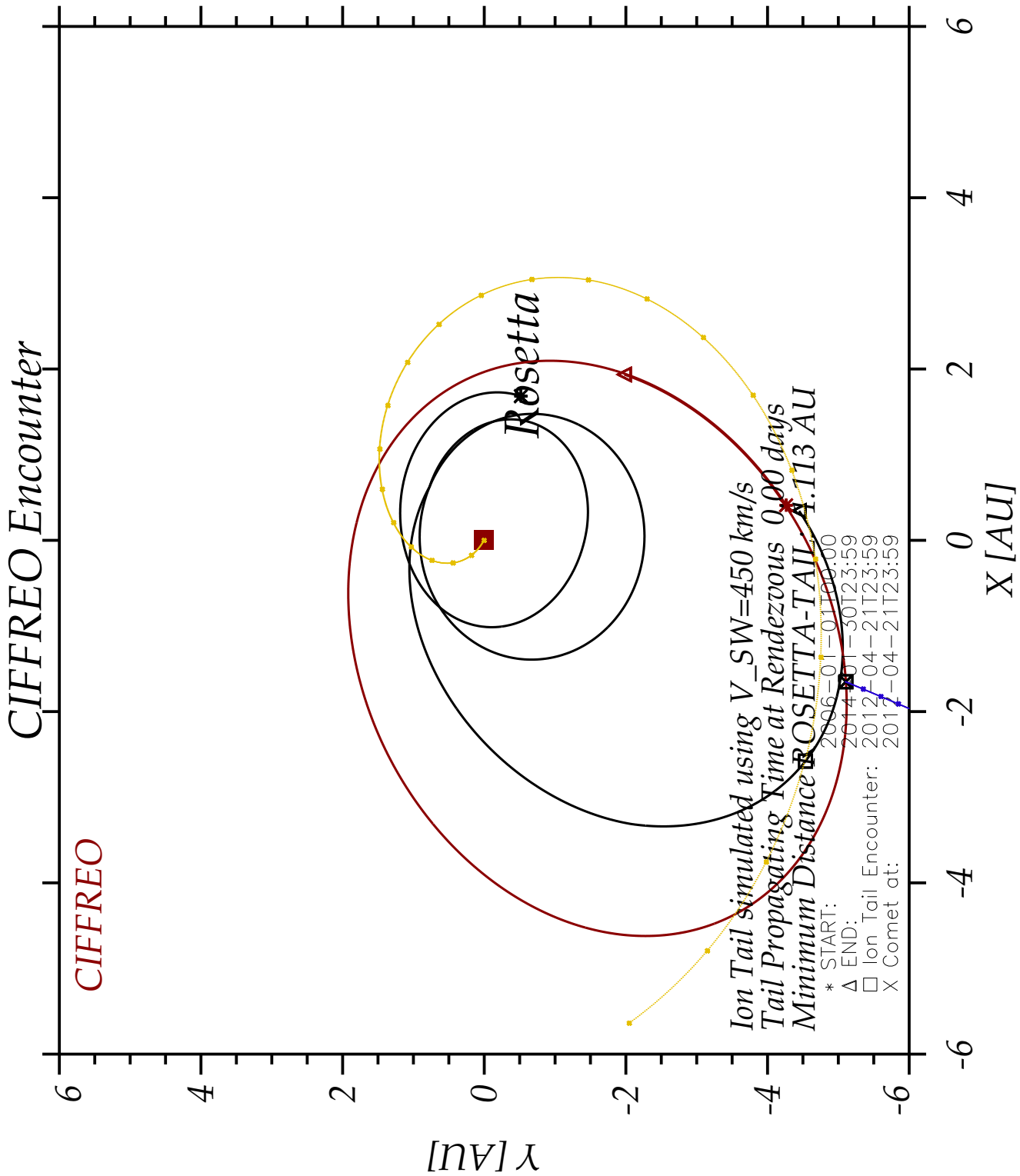


Figure 222: Overview: ROSETTA - CIFFREO

<p style="text-align: center;">R O S E T T A</p>	<p>Document: RO-IGEP-TR-0020 Issue: 1 Revision: 2</p>
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## 114 Comet 109P/SWIFT-TUTTLE

<p><b>Comet: 109P/SWIFT-TUTTLE</b></p>
<p><b>No Encounter below 0.2000AU</b></p>



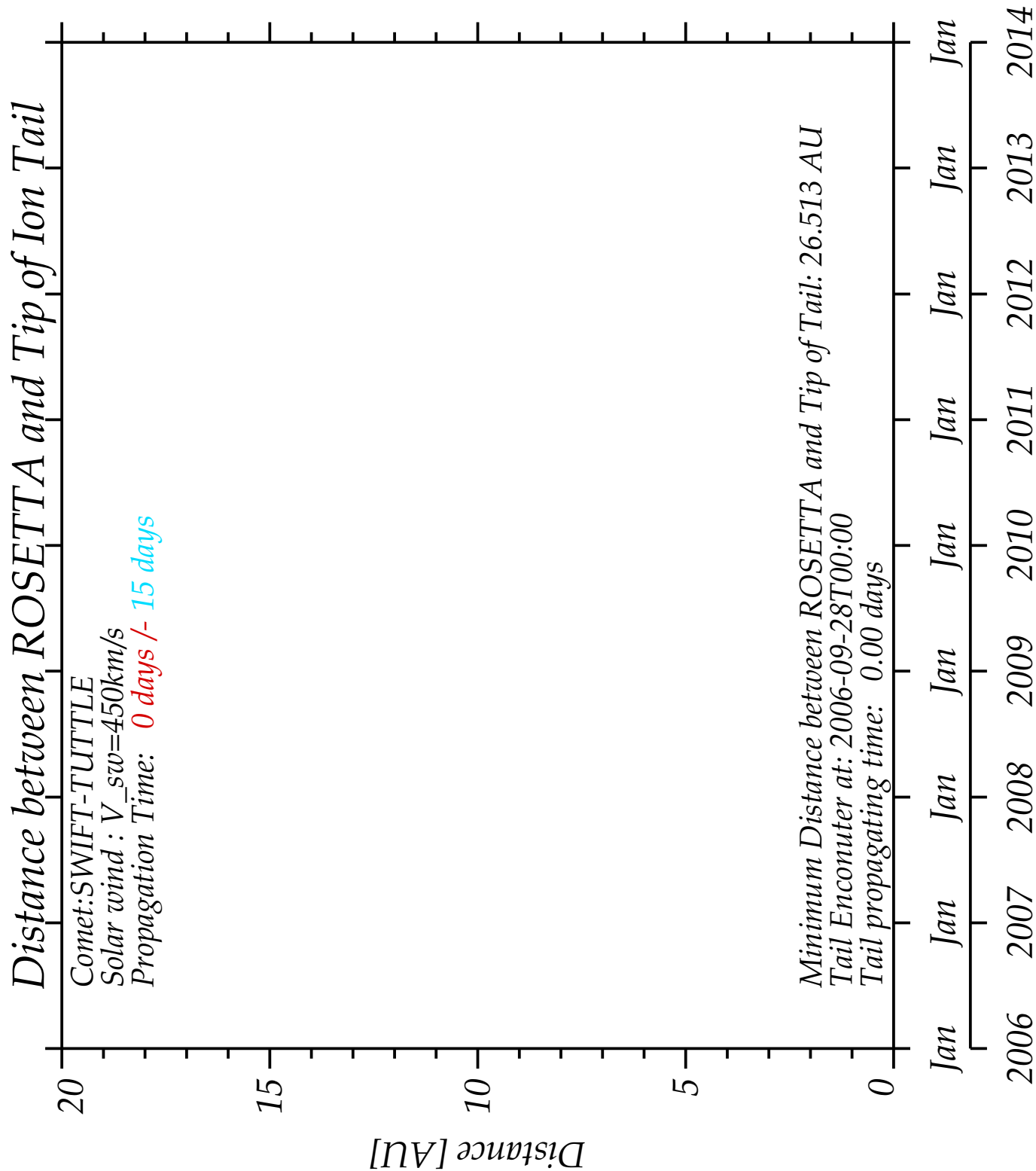


Figure 223: Minimum Distances: ROSETTA - SWIFT-TUTTLE

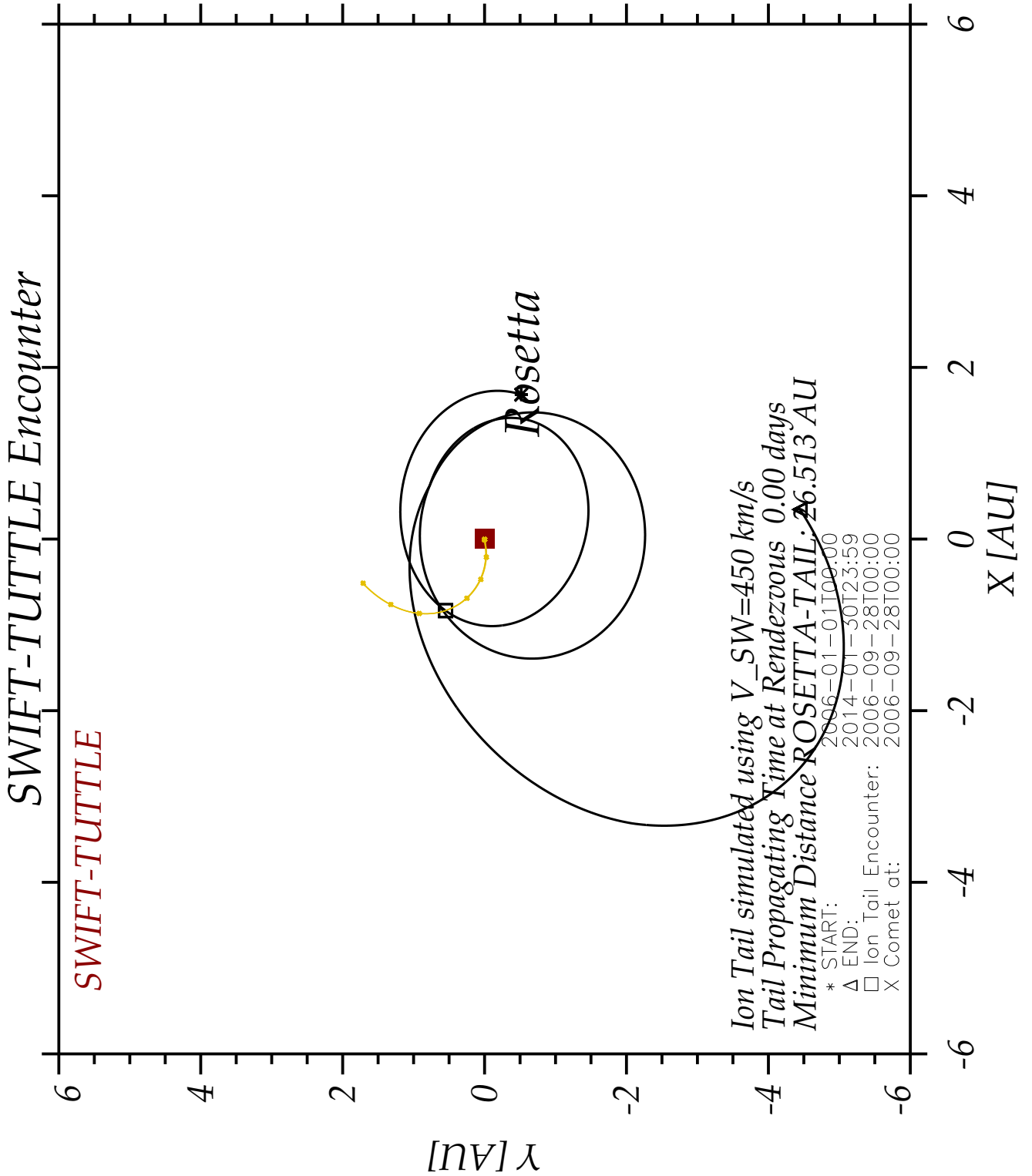


Figure 224: Overview: ROSETTA - SWIFT-TUTTLE

<p style="text-align: center;">R O S E T T A</p>	<p>Document: RO-IGEP-TR-0020  Issue: 1  Revision: 2  Date: 2006-10-25  Page: 338</p>
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## 115 Comet 110P/HARTLEY 3

<p><b>Comet: 110P/HARTLEY 3</b></p>
<p><b>No Encounter below 0.2000AU</b></p>

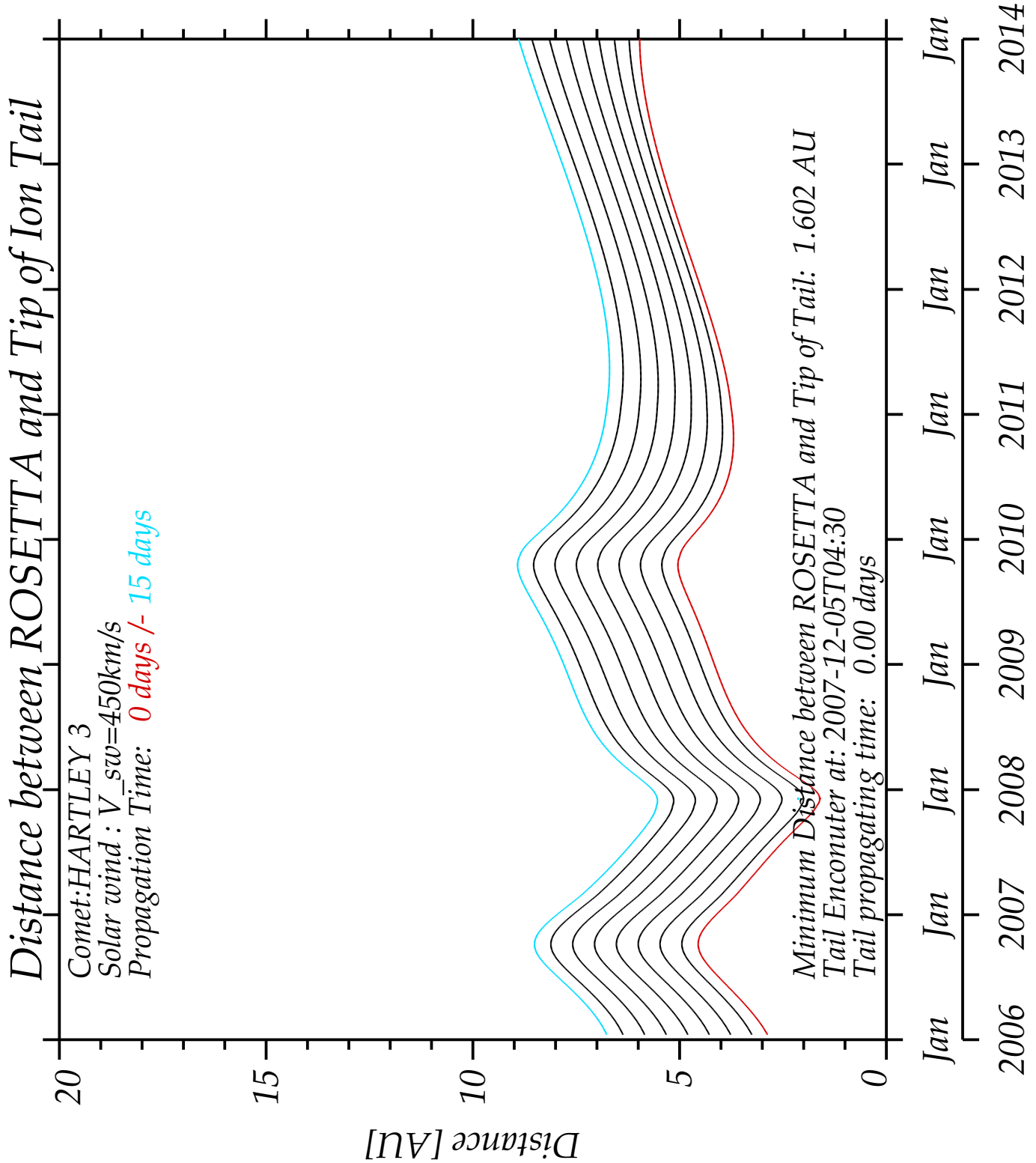


Figure 225: Minimum Distances: ROSETTA - HARTLEY 3

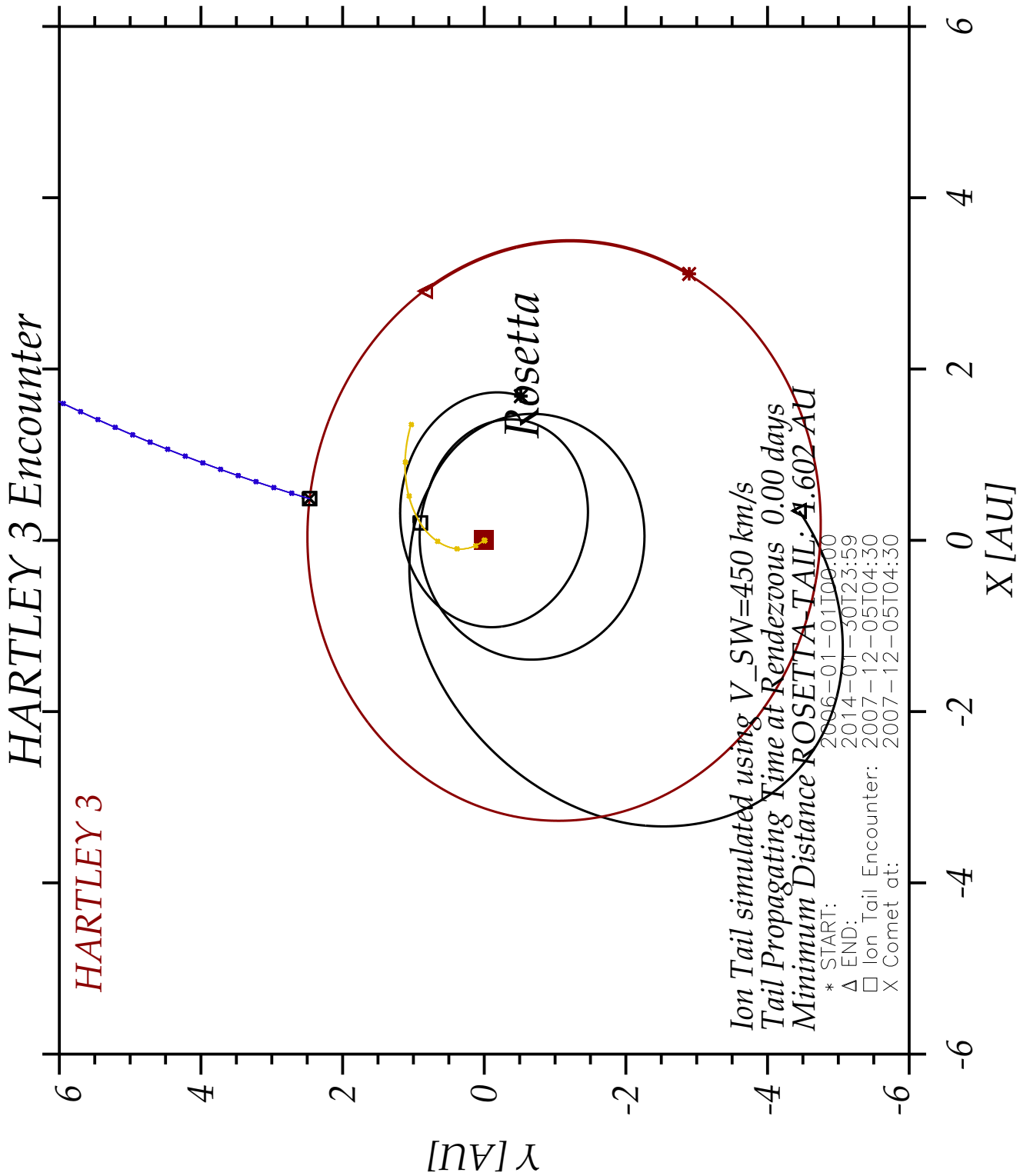


Figure 226: Overview: ROSETTA - HARTLEY 3

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## **116 Comet 111P/HELIN-ROMAN-CROCKETT**

<b>Comet: 111P/HELIN-ROMAN-CROCKETT</b>
<b>No Encounter below 0.2000AU</b>

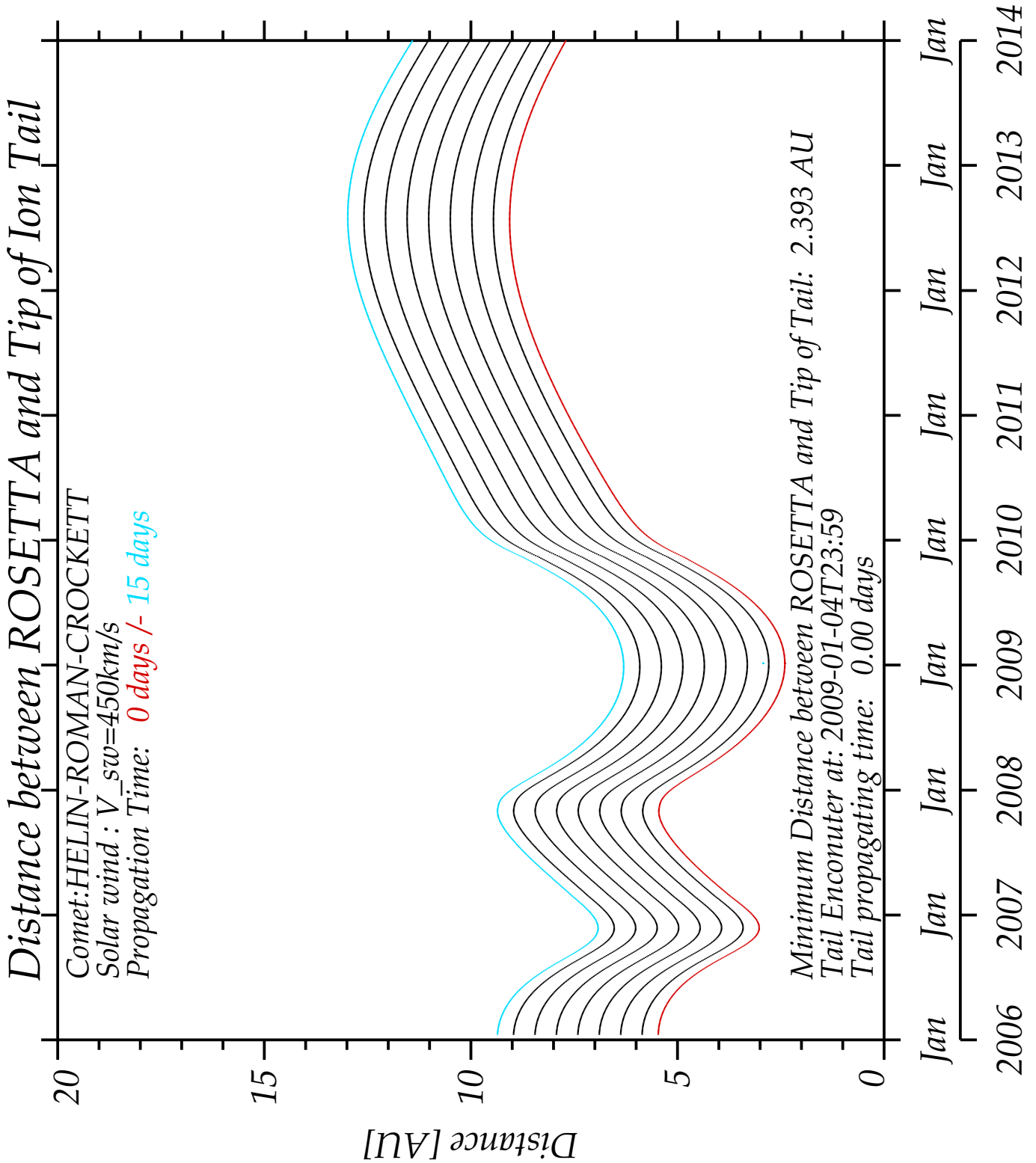


Figure 227: Minimum Distances: ROSETTA - HELIN-ROMAN-CROCKETT

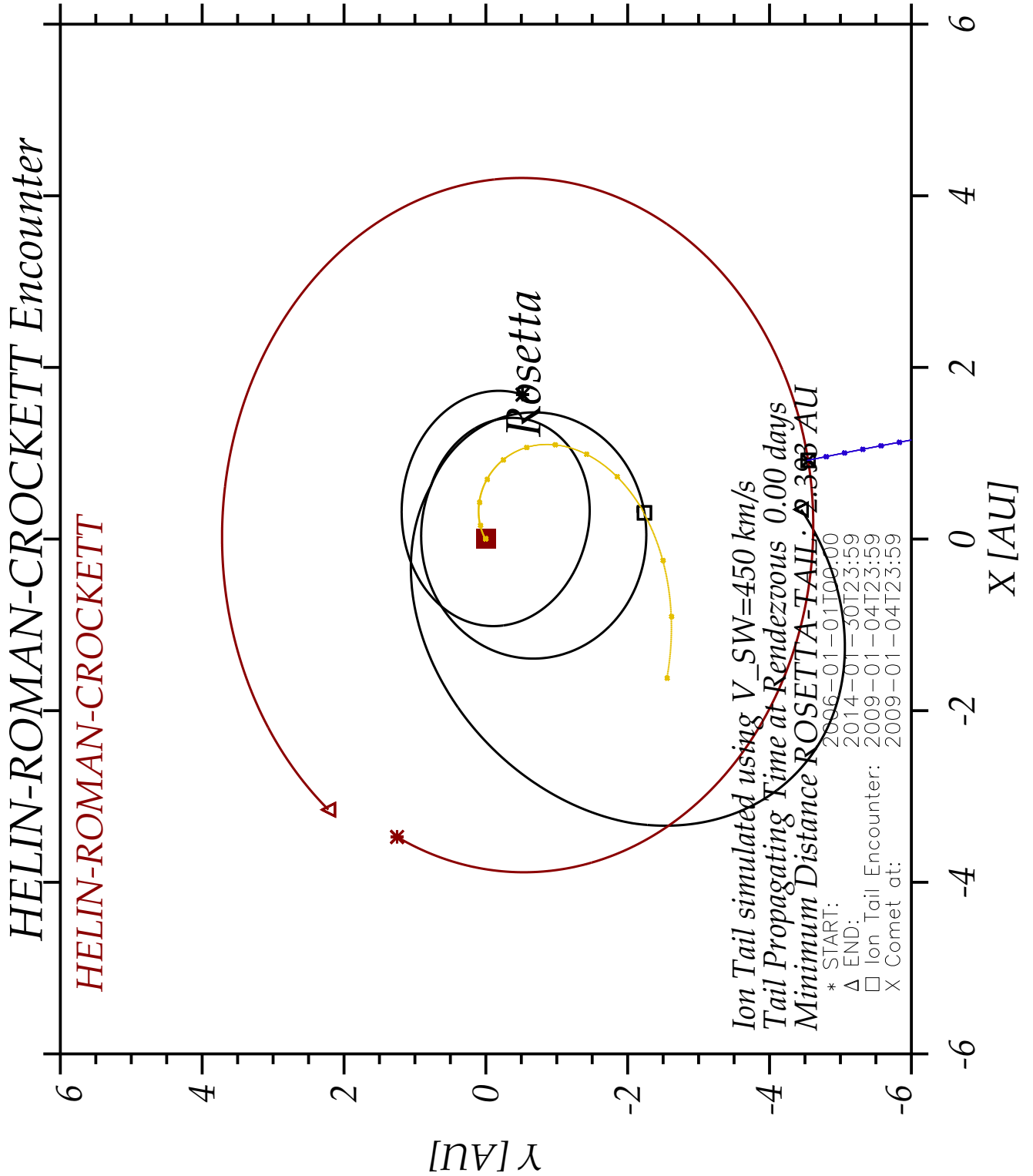


Figure 228: Overview: ROSETTA - HELIN-ROMAN-CROCKETT



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## 117 Comet 112P/URATA-NIIJIMA

<b>Comet: 112P/URATA-NIIJIMA</b>
<b>No Encounter below 0.2000AU</b>

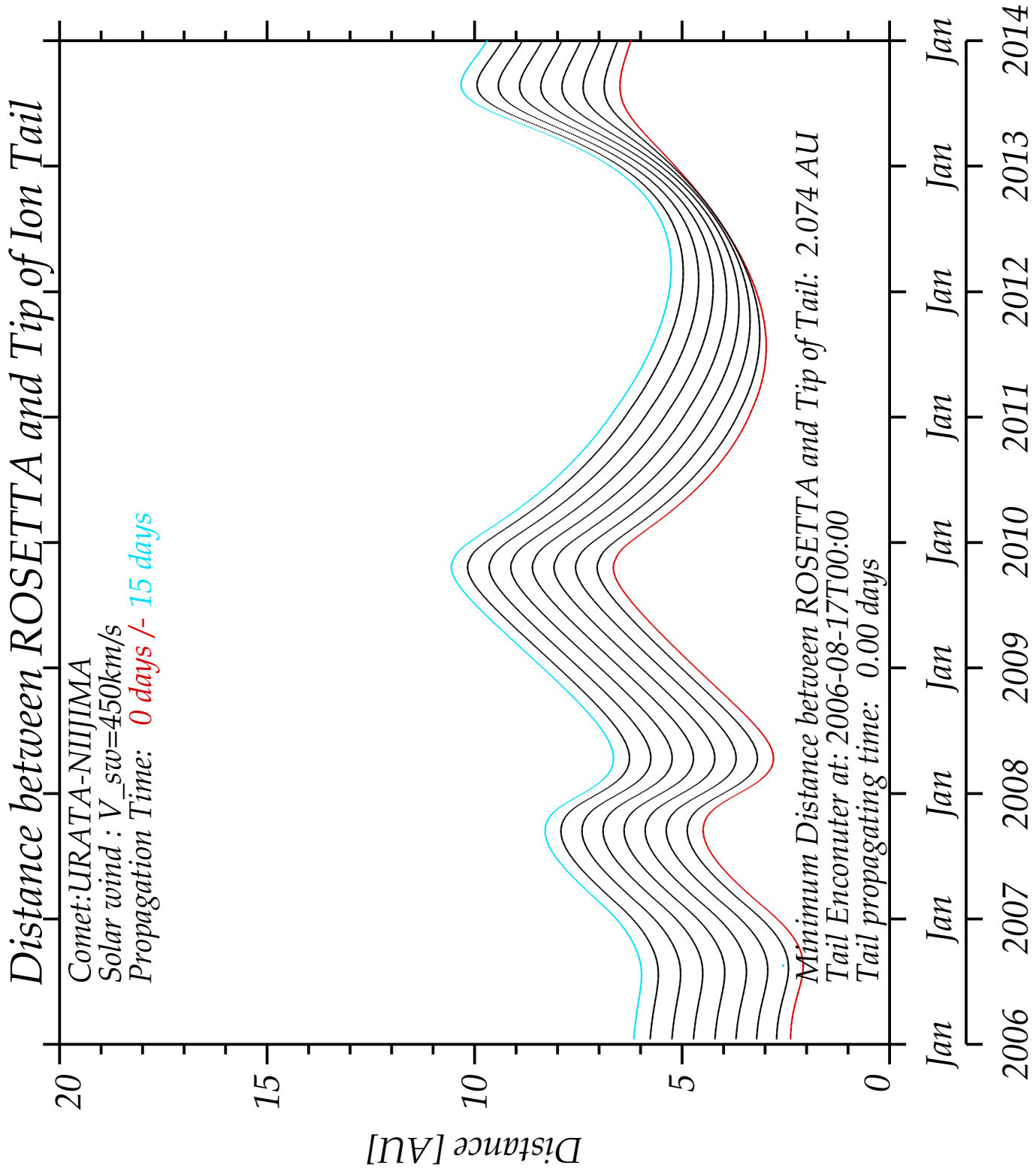


Figure 229: Minimum Distances: ROSETTA - URATA-NIIJIMA

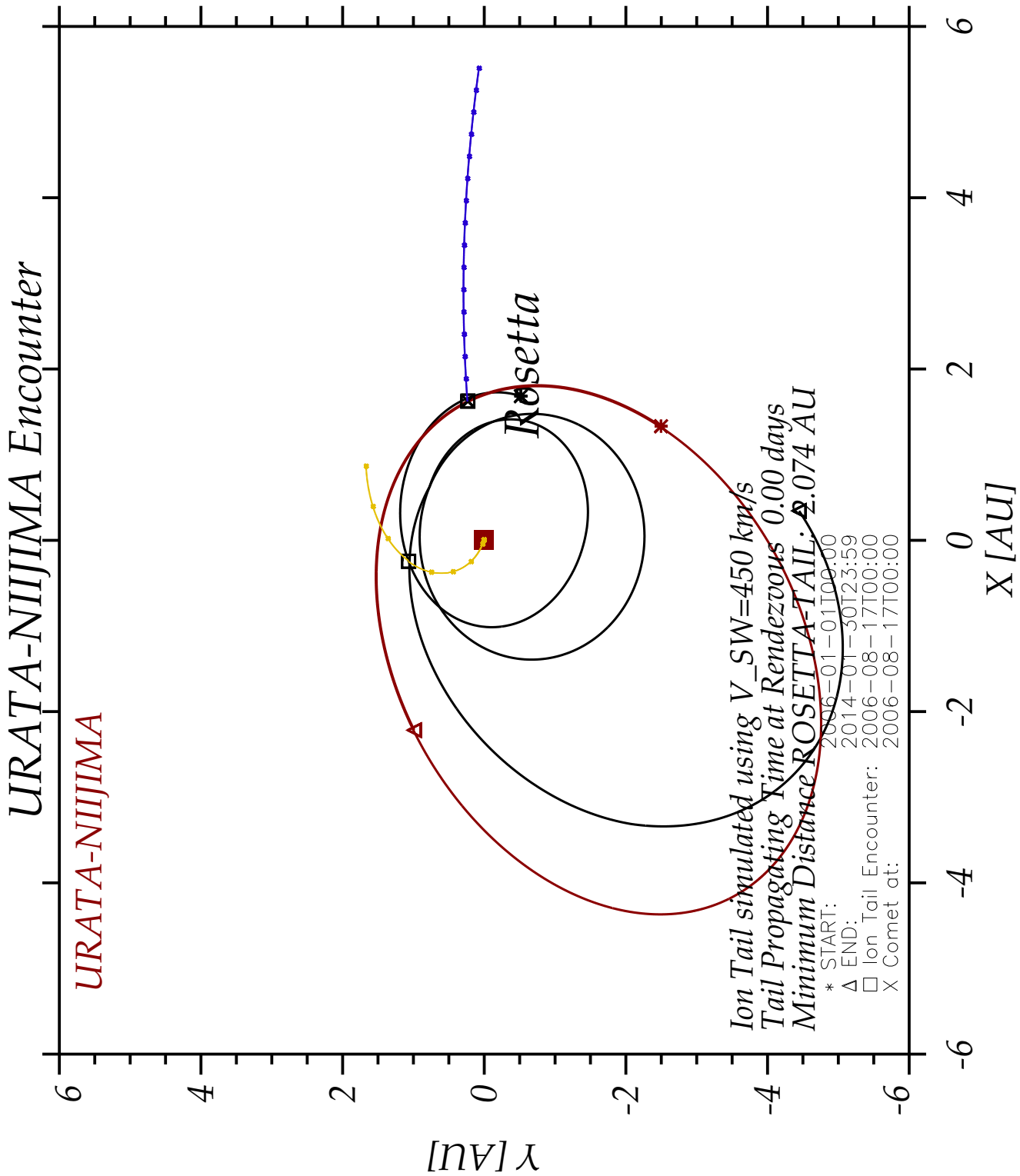


Figure 230: Overview: ROSETTA - URATA-NIIJIMA

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**118 Comet 113P/SPITALER**

<b>Comet: 113P/SPITALER</b>
<b>No Encounter below 0.2000AU</b>

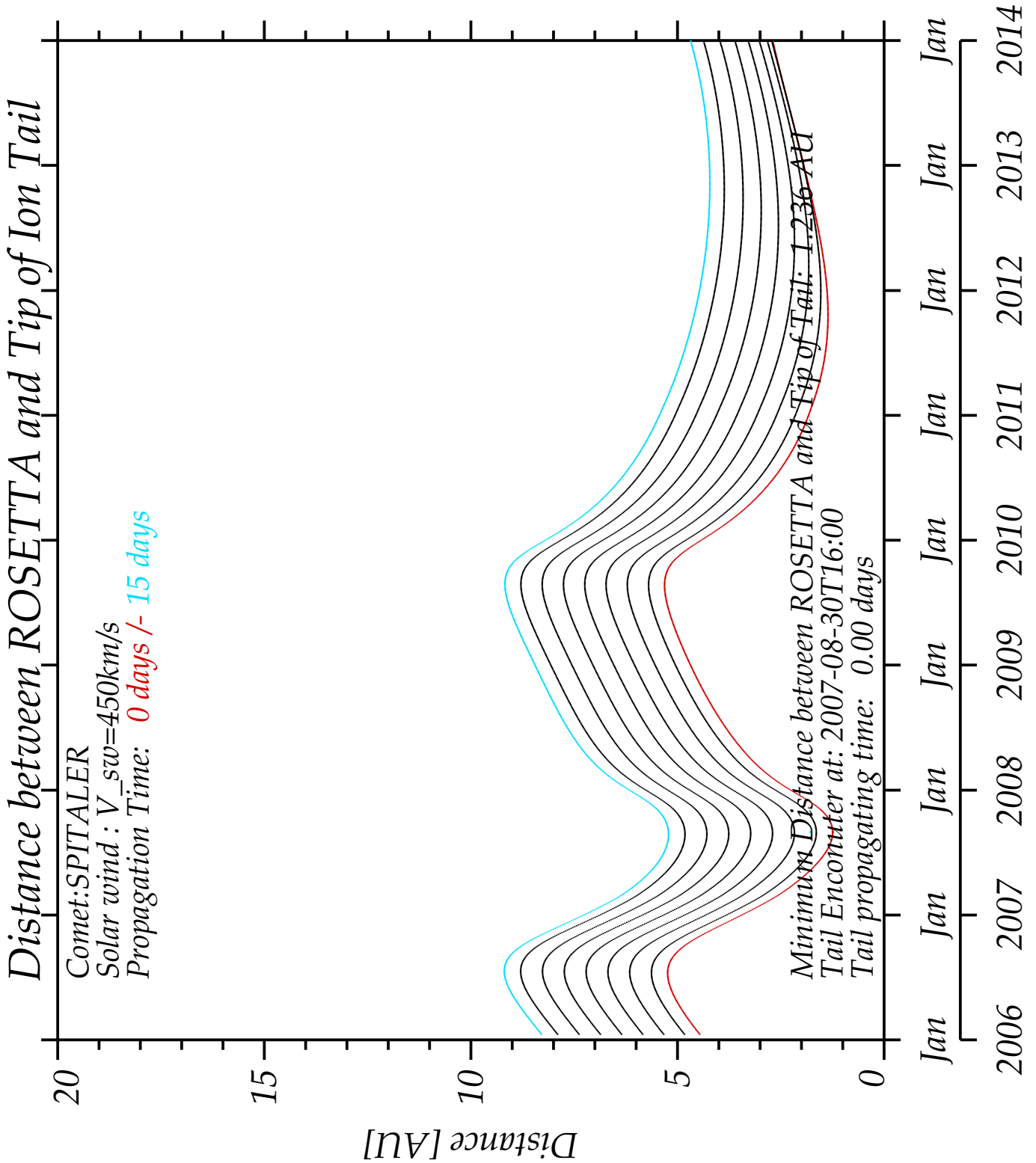


Figure 231: Minimum Distances: ROSETTA - SPITALER

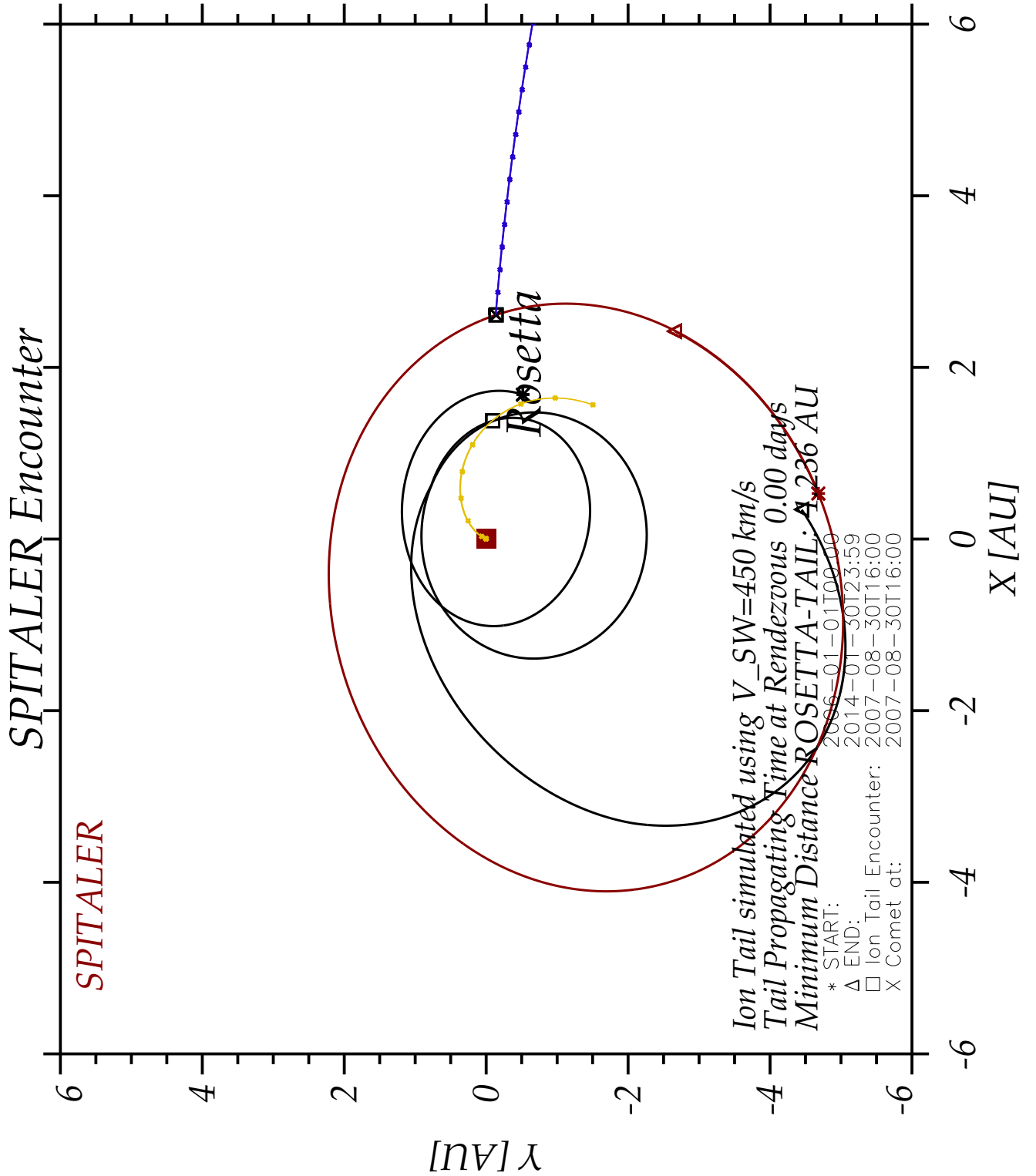


Figure 232: Overview: ROSETTA - SPITALER

<p style="text-align: center;">R O S E T T A</p>	<p>Document: RO-IGEP-TR-0020  Issue: 1  Revision: 2  Date: 2006-10-25  Page: 350</p>
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## 119 Comet 114P/WISEMAN-SKIFF

<p><b>Comet: 114P/WISEMAN-SKIFF</b></p>
<p><b>No Encounter below 0.2000AU</b></p>

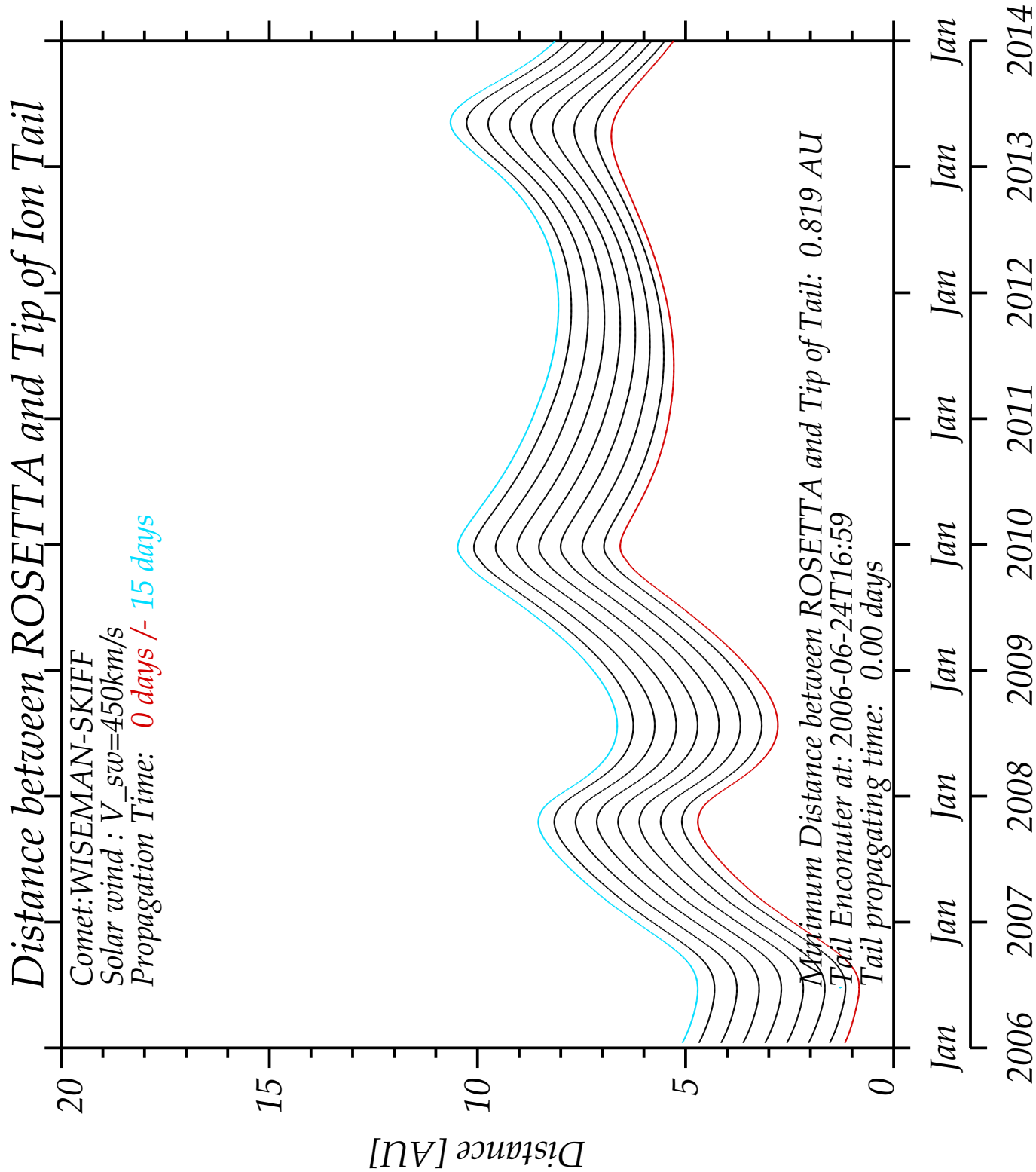


Figure 233: Minimum Distances: ROSETTA - WISEMAN-SKIFF



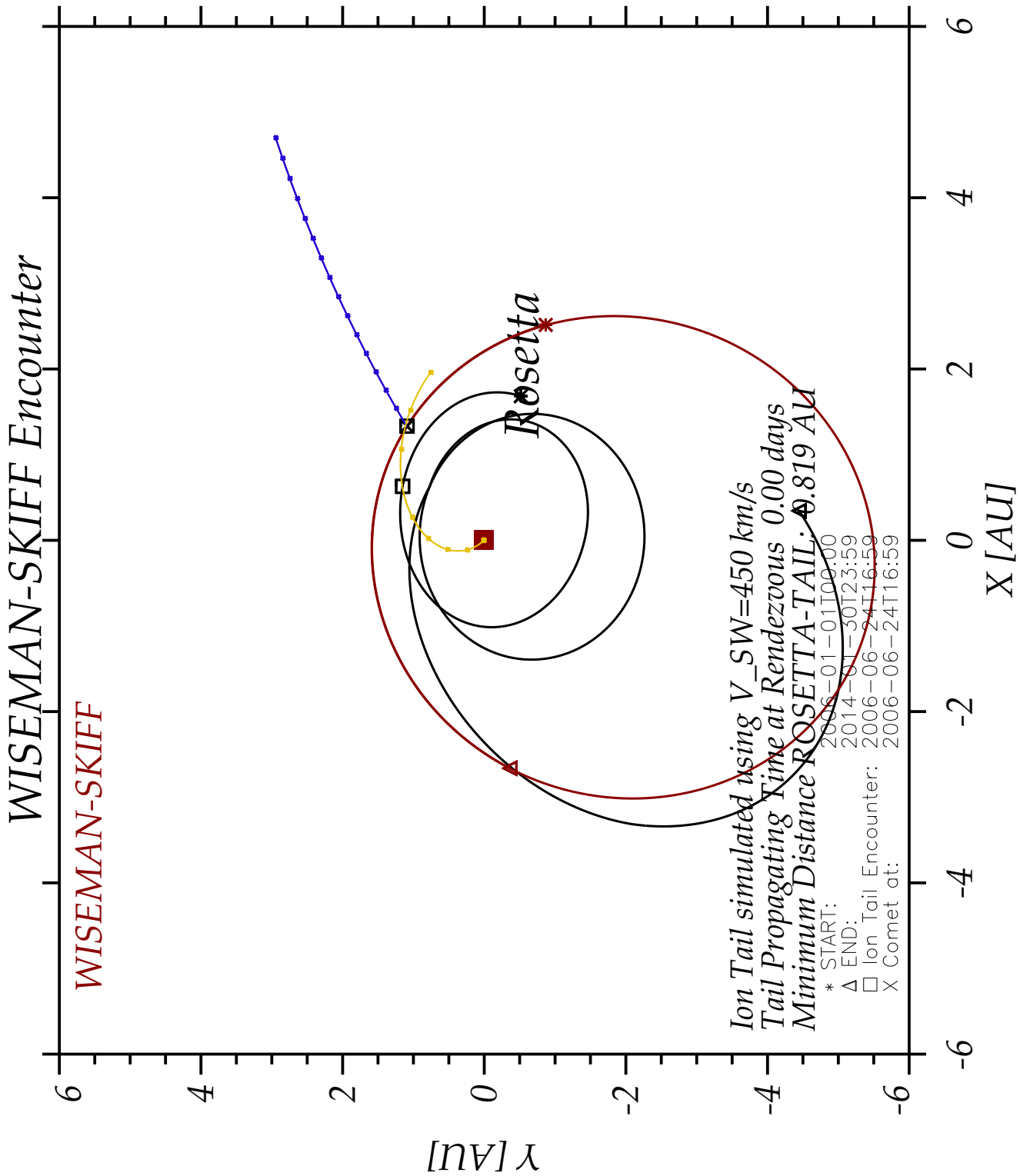


Figure 234: Overview: ROSETTA - WISEMAN-SKIFF

<p style="text-align: center;">R O S E T T A</p>	<p>Document: RO-IGEP-TR-0020  Issue: 1  Revision: 2</p>
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## 120 Comet 115P/MAURY

<p><b>Comet: 115P/MAURY</b></p>
<p><b>No Encounter below 0.2000AU</b></p>

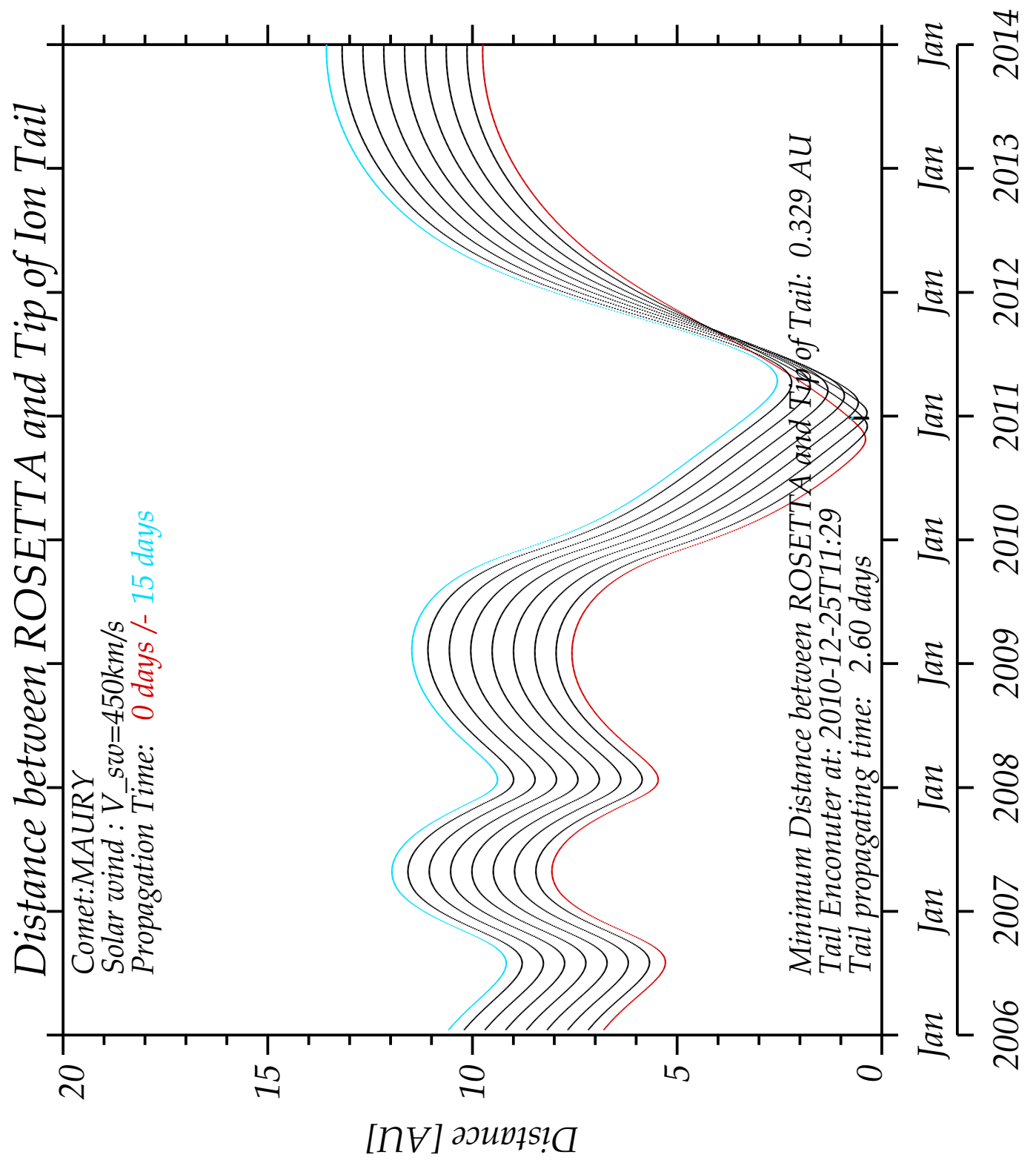


Figure 235: Minimum Distances: ROSETTA - MAURY

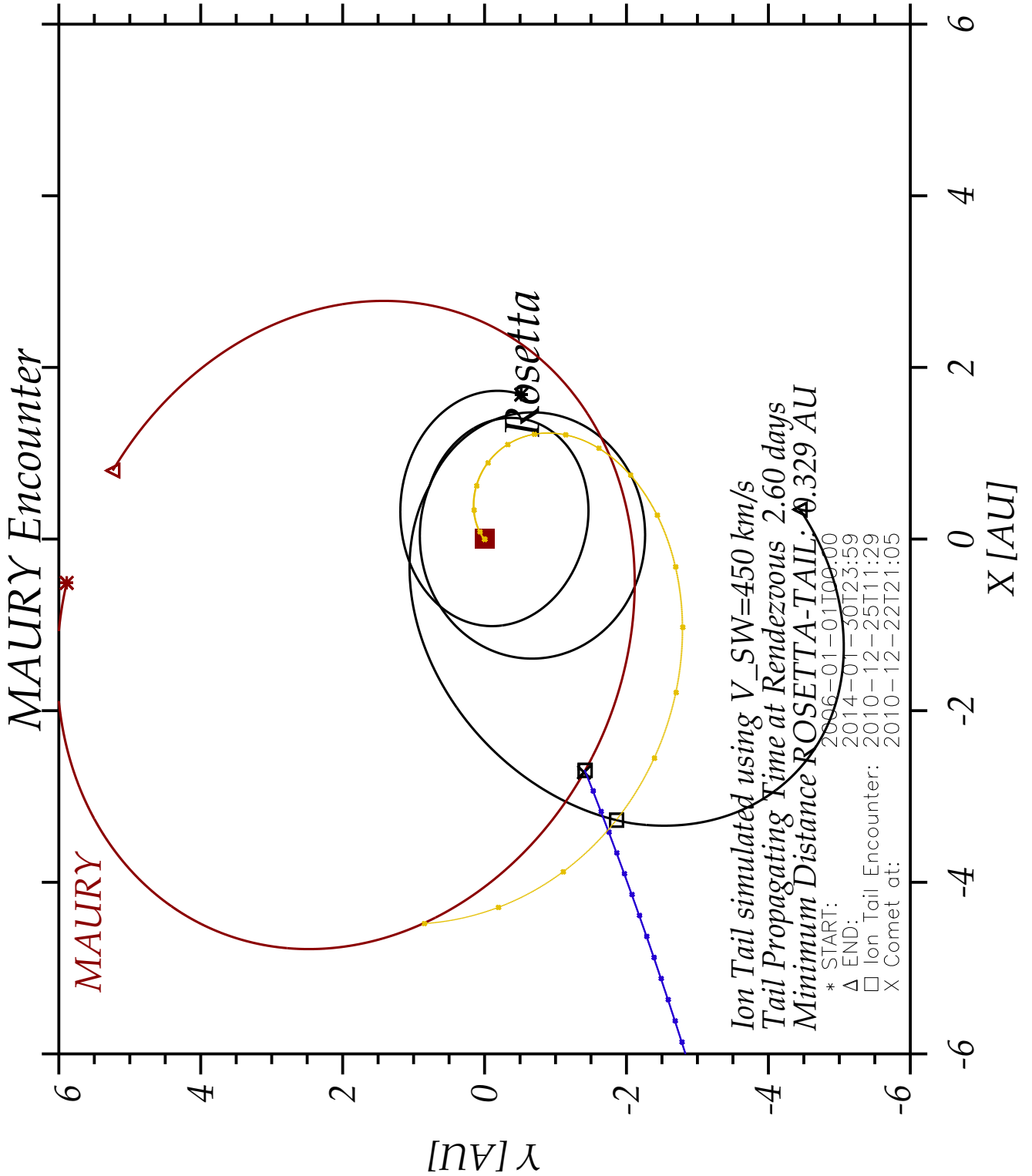


Figure 236: Overview: ROSETTA - MAURY

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## 121 Comet 116P/WILD 4

<b>Comet: 116P/WILD 4</b>
<b>No Encounter below 0.2000AU</b>

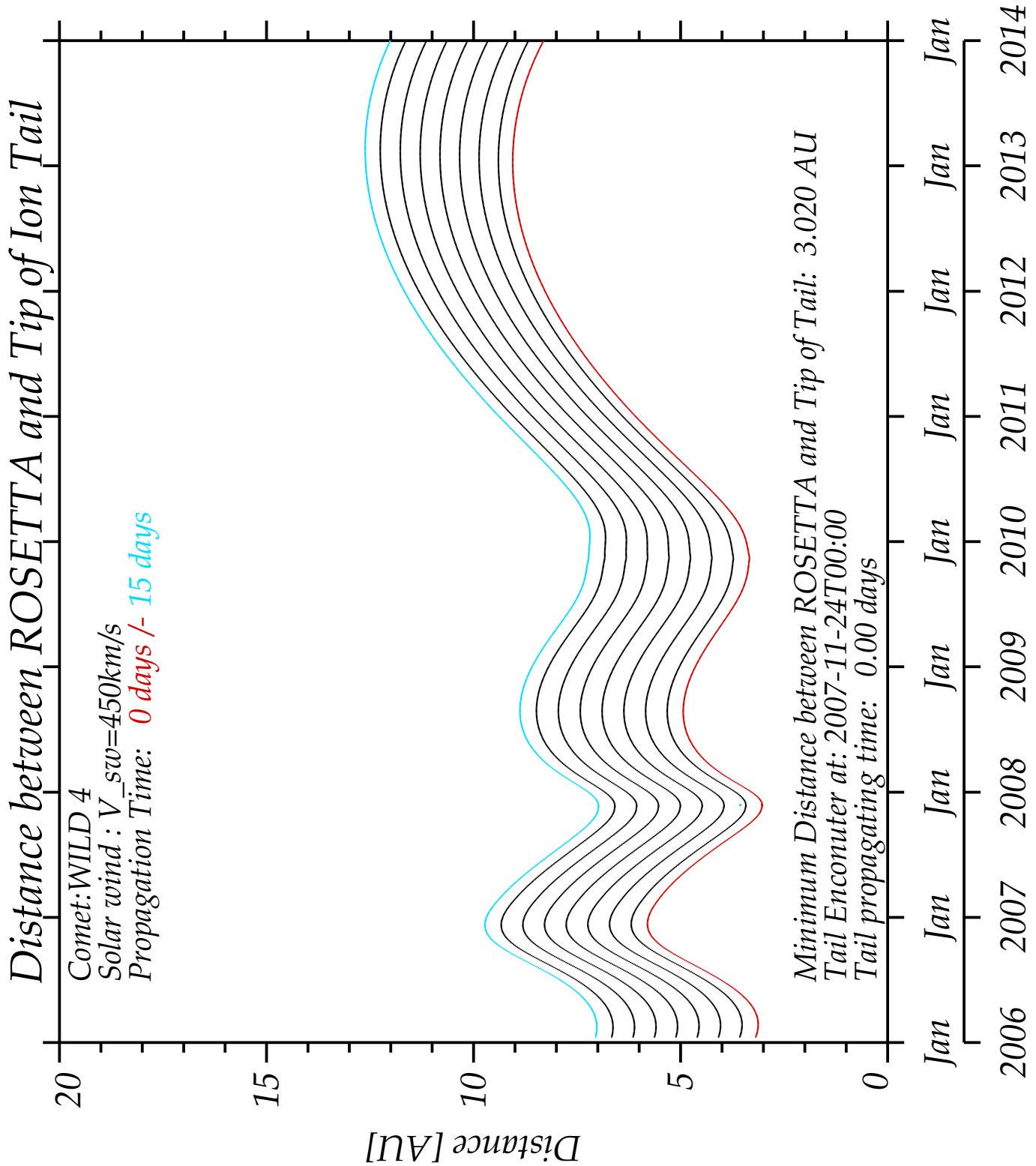


Figure 237: Minimum Distances: ROSETTA - WILD 4

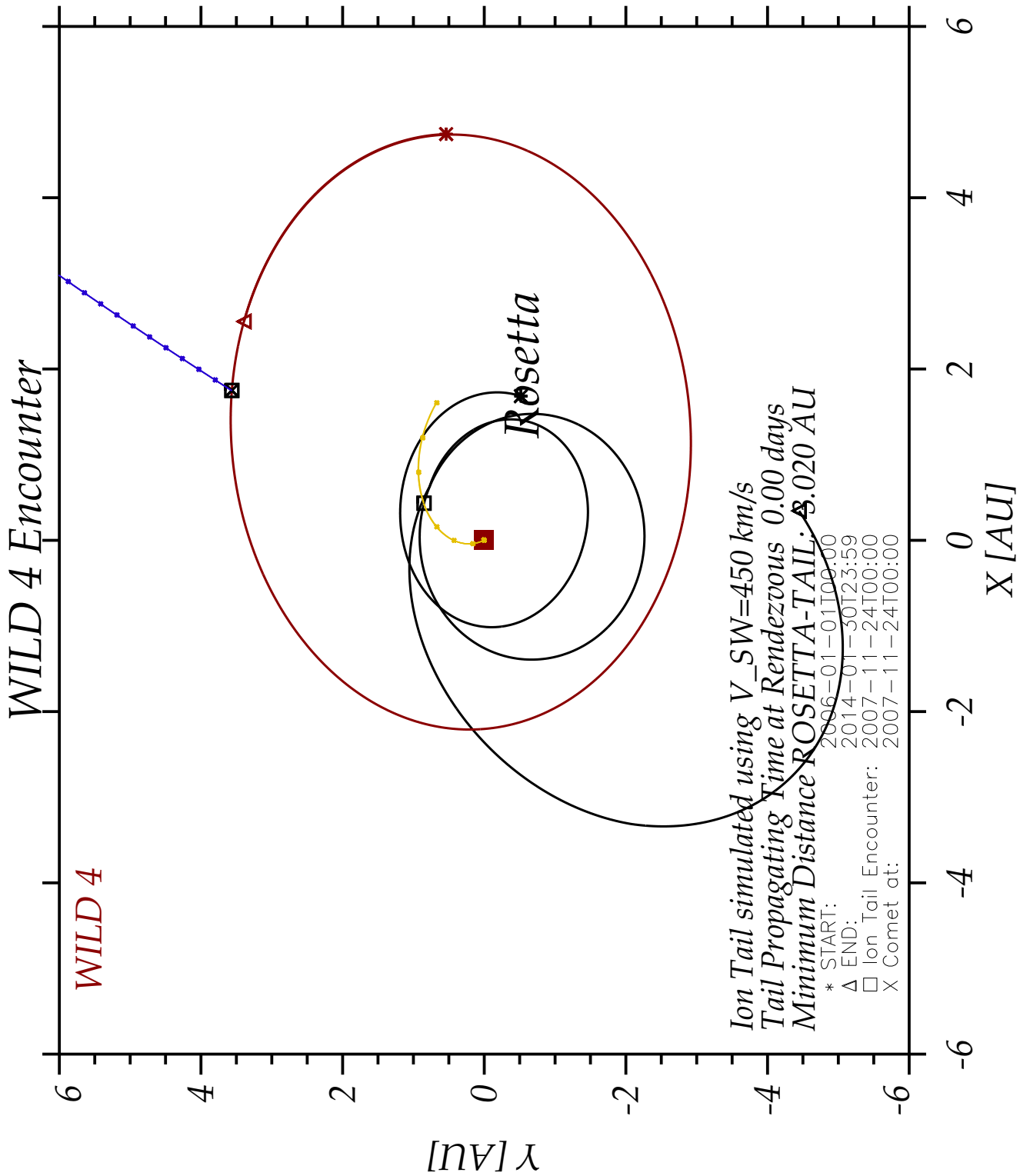


Figure 238: Overview: ROSETTA - WILD 4

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## 122 Comet 117P/HELIN-ROMAN-ALU 1

<b>Comet: 117P/HELIN-ROMAN-ALU 1</b>
<b>No Encounter below 0.2000AU</b>



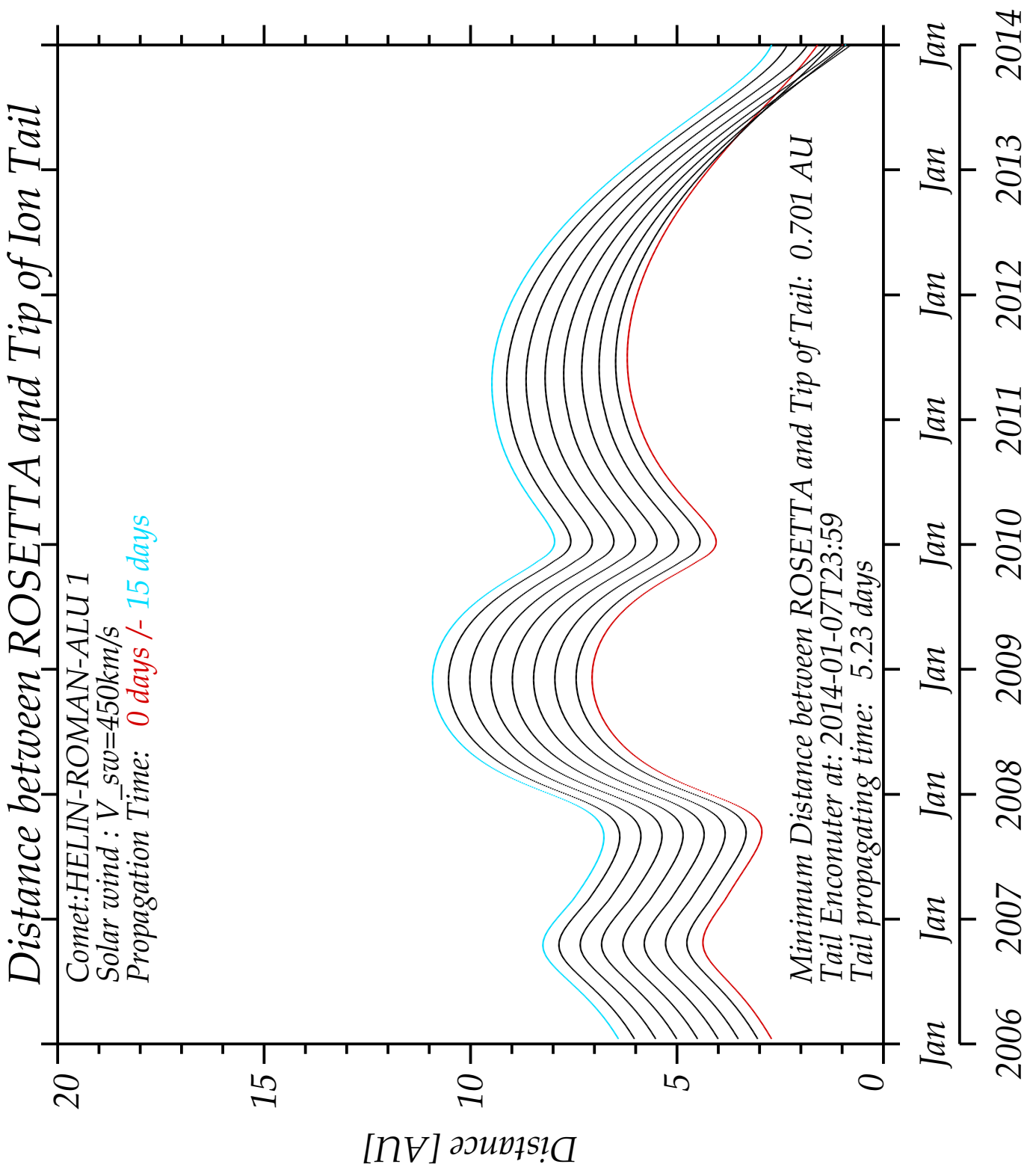


Figure 239: Minimum Distances: ROSETTA - HELIN-ROMAN-ALU 1

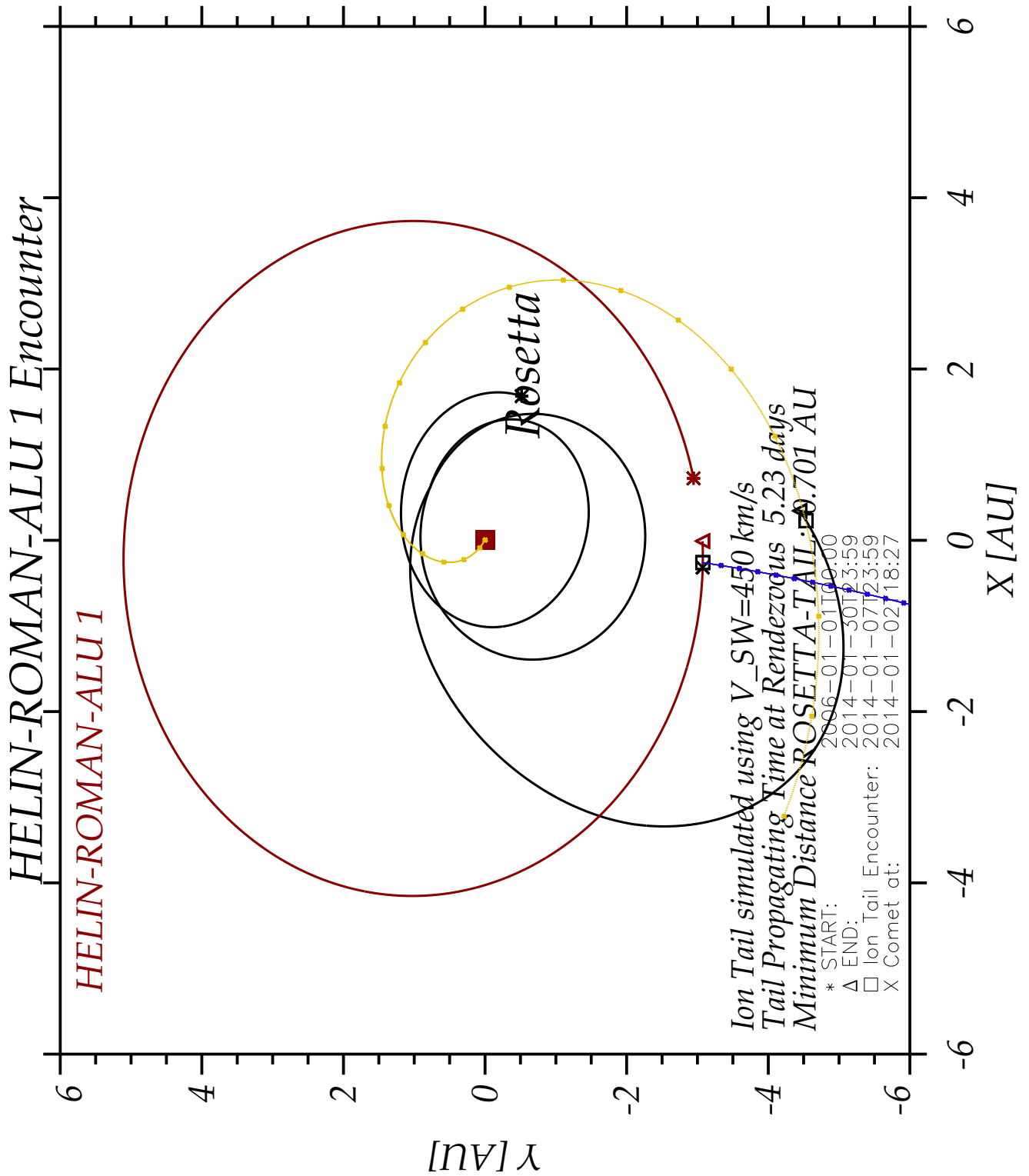


Figure 240: Overview: ROSETTA - HELIN-ROMAN-ALU 1

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## 123 Comet 118P/SHOEMAKER-LEVY 4

<b>Comet: 118P/SHOEMAKER-LEVY 4</b>
<b>No Encounter below 0.2000AU</b>

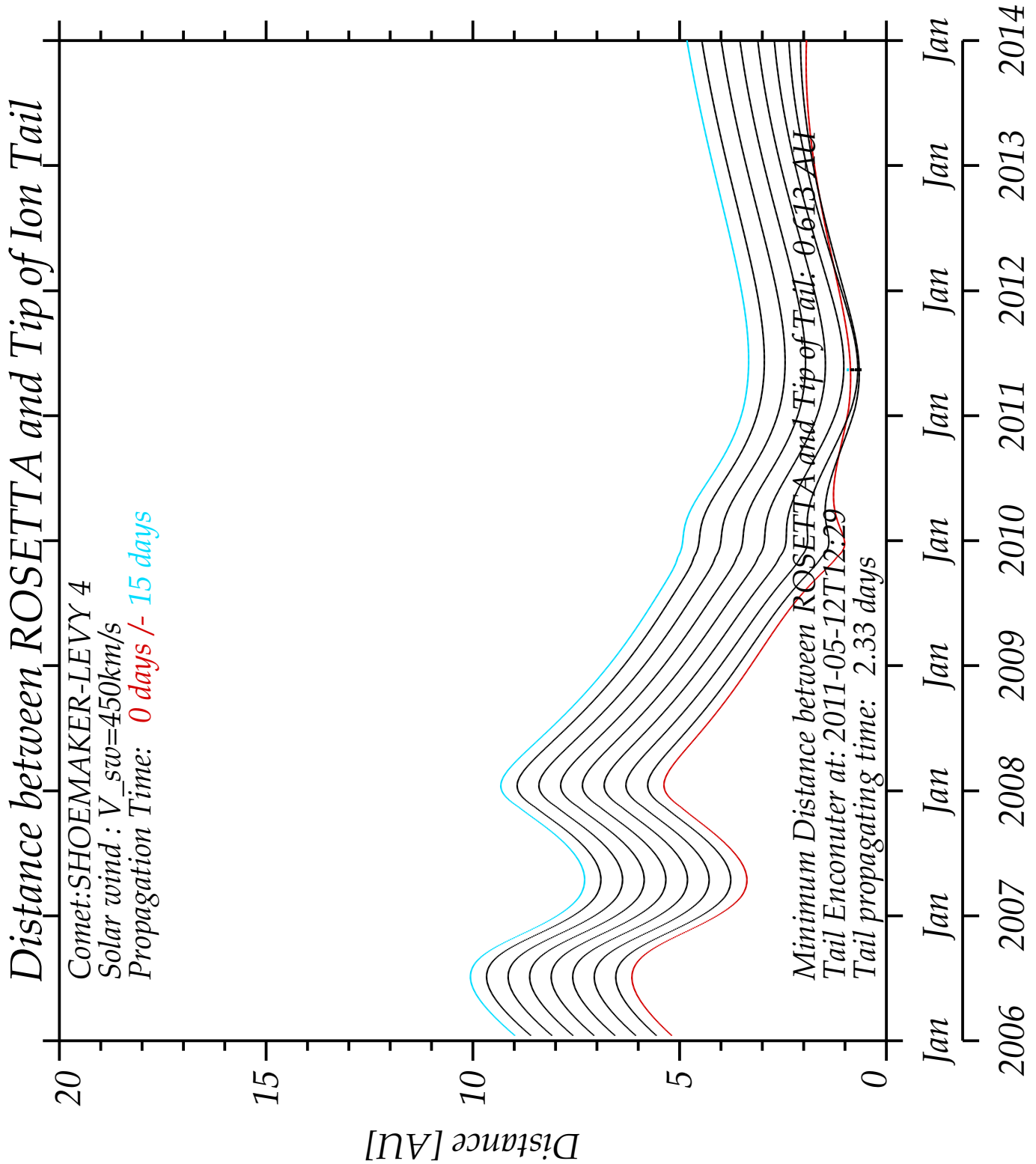


Figure 241: Minimum Distances: ROSETTA - SHOEMAKER-LEVY 4

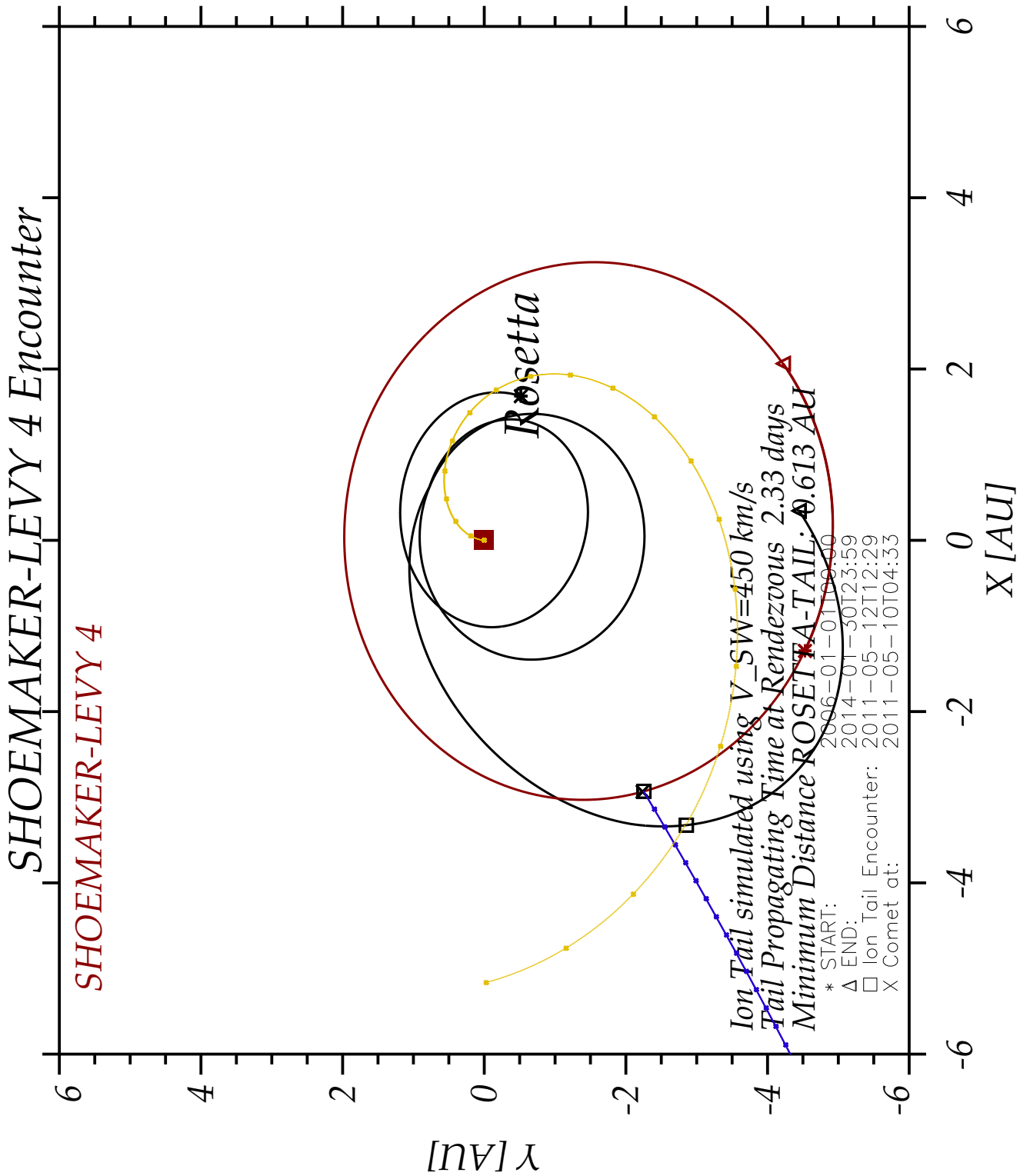


Figure 242: Overview: ROSETTA - SHOEMAKER-LEVY 4

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## **124 Comet 119P/PARKER-HARTLEY**

<b>Comet: 119P/PARKER-HARTLEY</b>
<b>No Encounter below 0.2000AU</b>

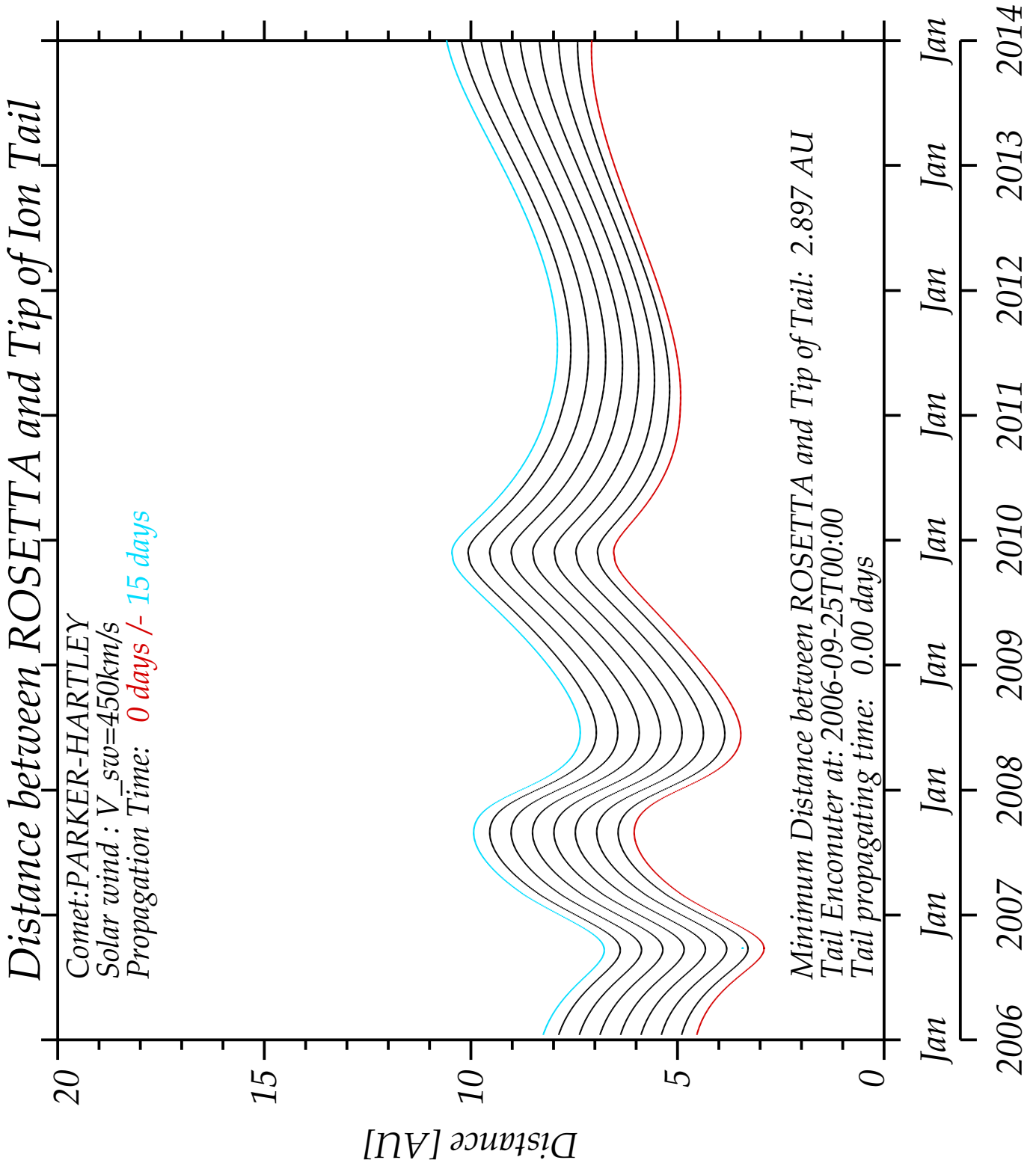


Figure 243: Minimum Distances: ROSETTA - PARKER-HARTLEY

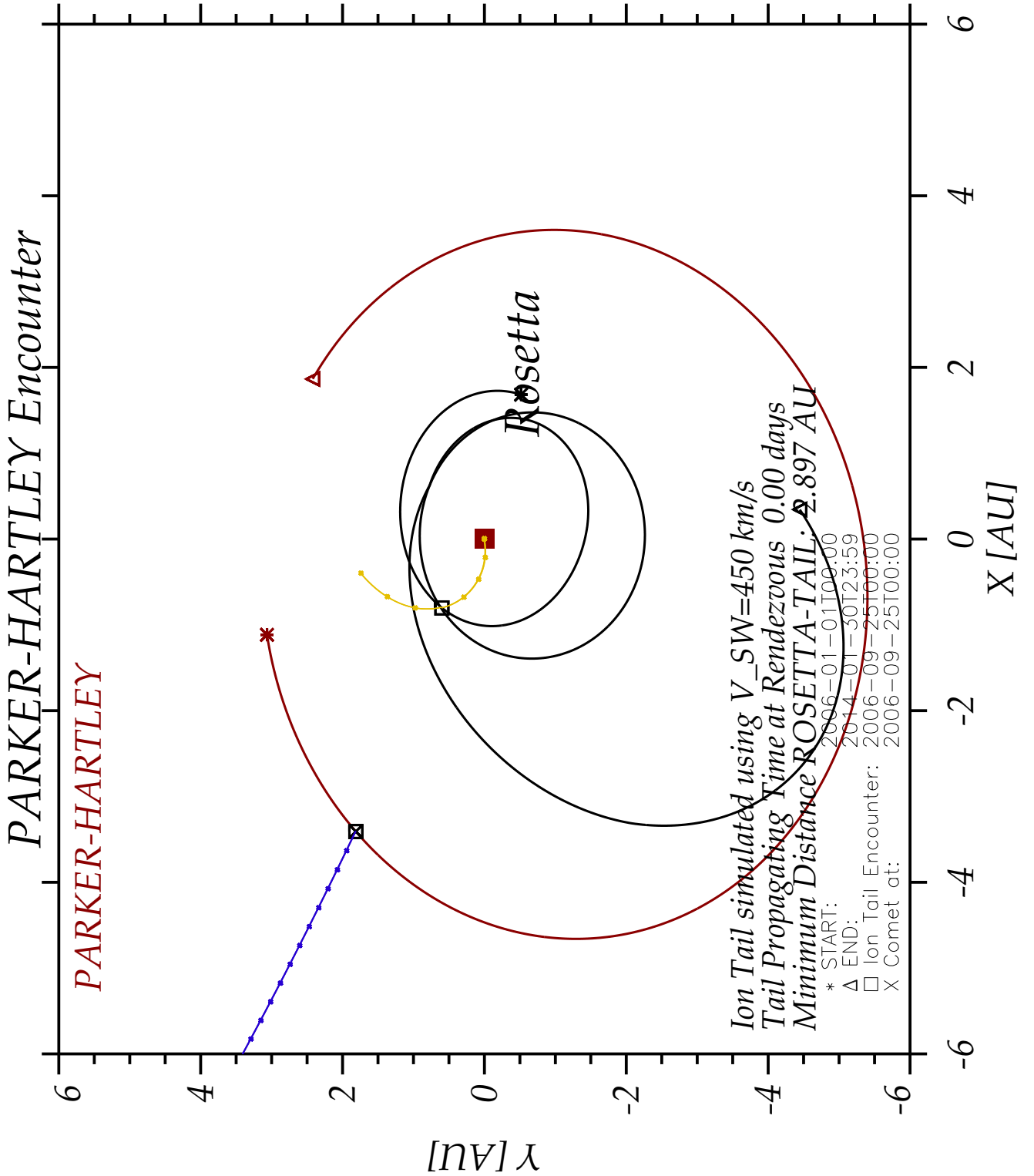


Figure 244: Overview: ROSETTA - PARKER-HARTLEY



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## **125 Comet 120P/MUELLER**

<b>Comet: 120P/MUELLER</b>
<b>No Encounter below 0.2000AU</b>

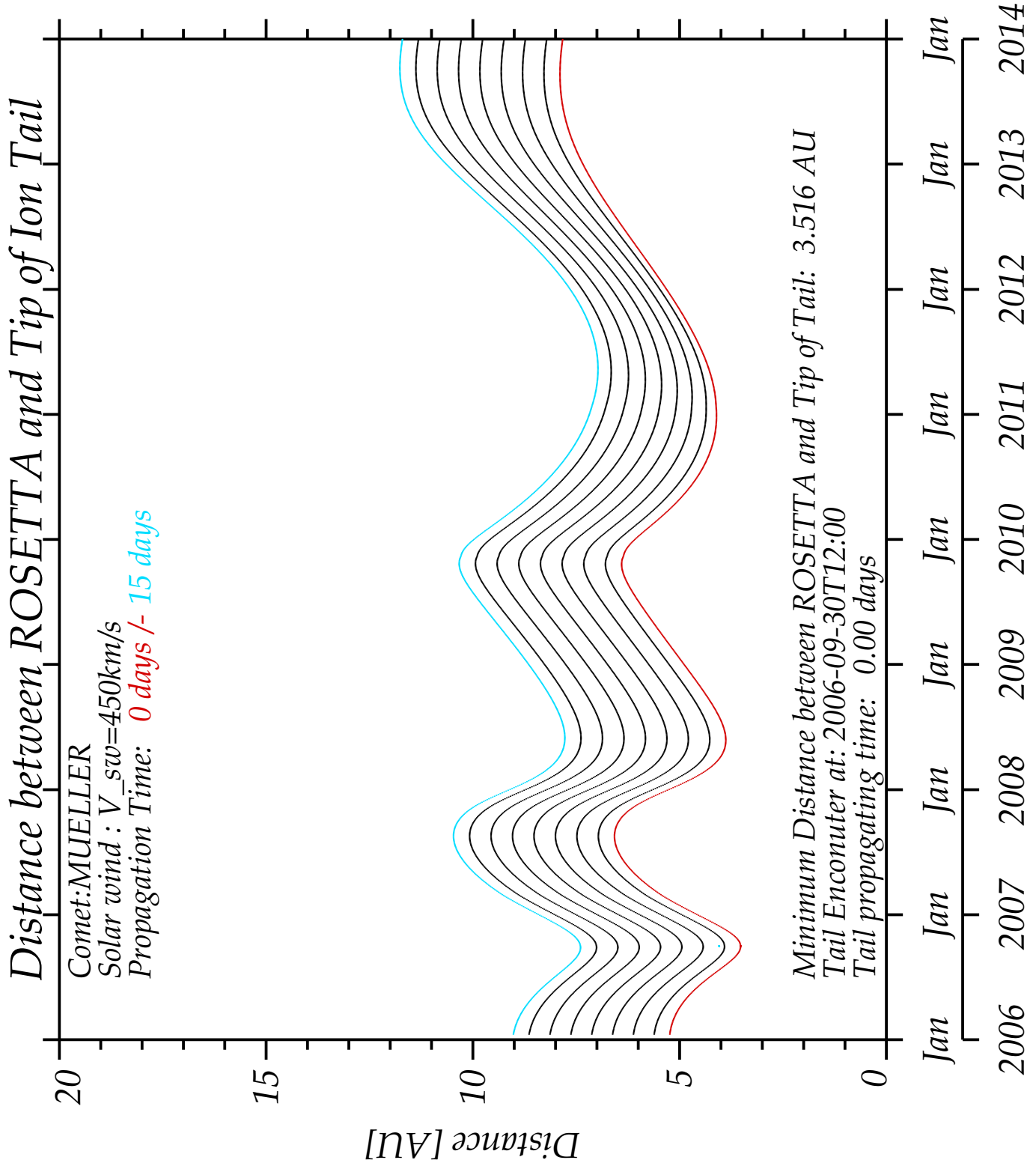


Figure 245: Minimum Distances: ROSETTA - MUELLER

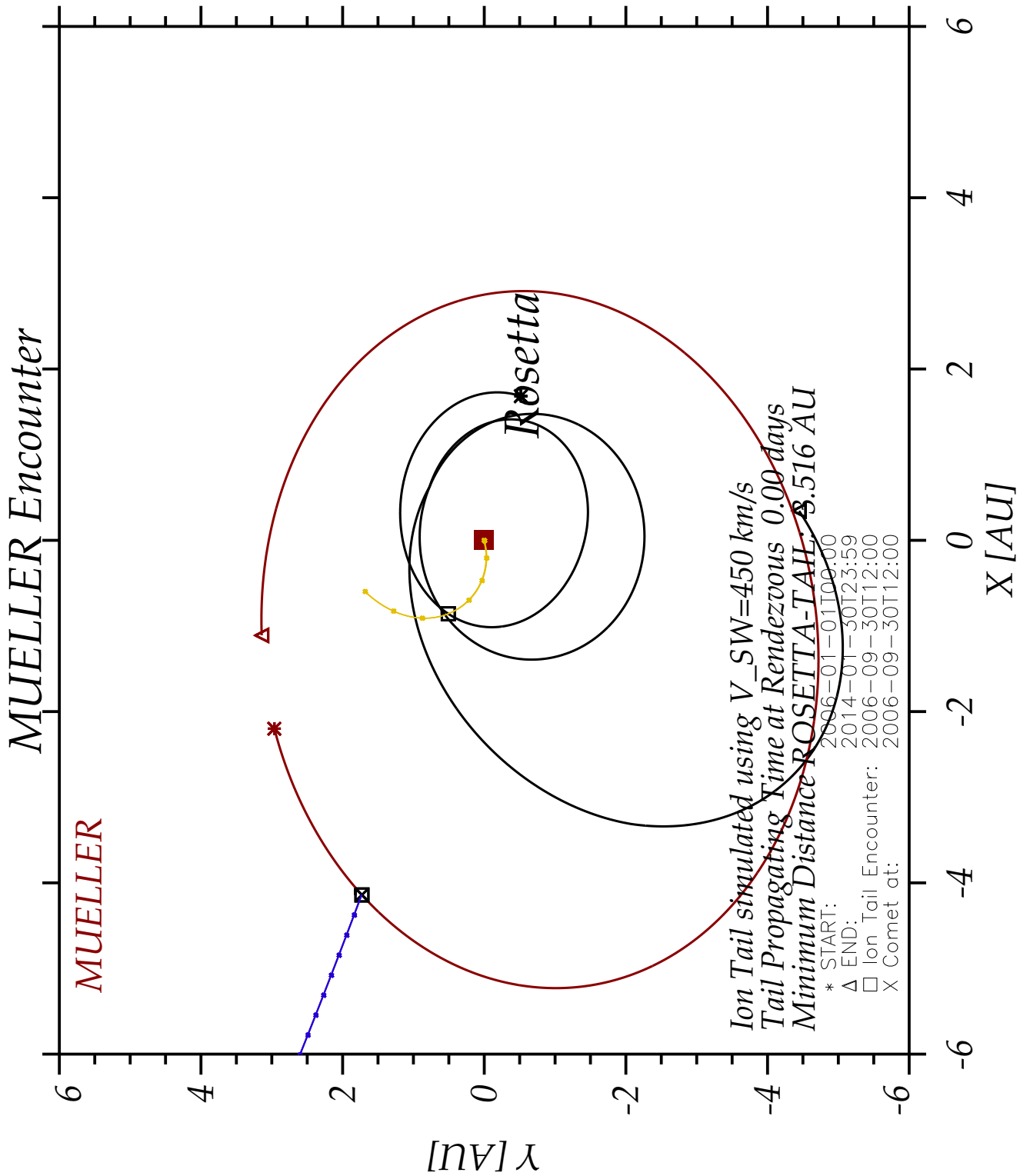


Figure 246: Overview: ROSETTA - MUELLER

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## **126 Comet 121P/SHOEMAKER-HOLT 2**

<b>Comet: 121P/SHOEMAKER-HOLT 2</b>
<b>No Encounter below 0.2000AU</b>

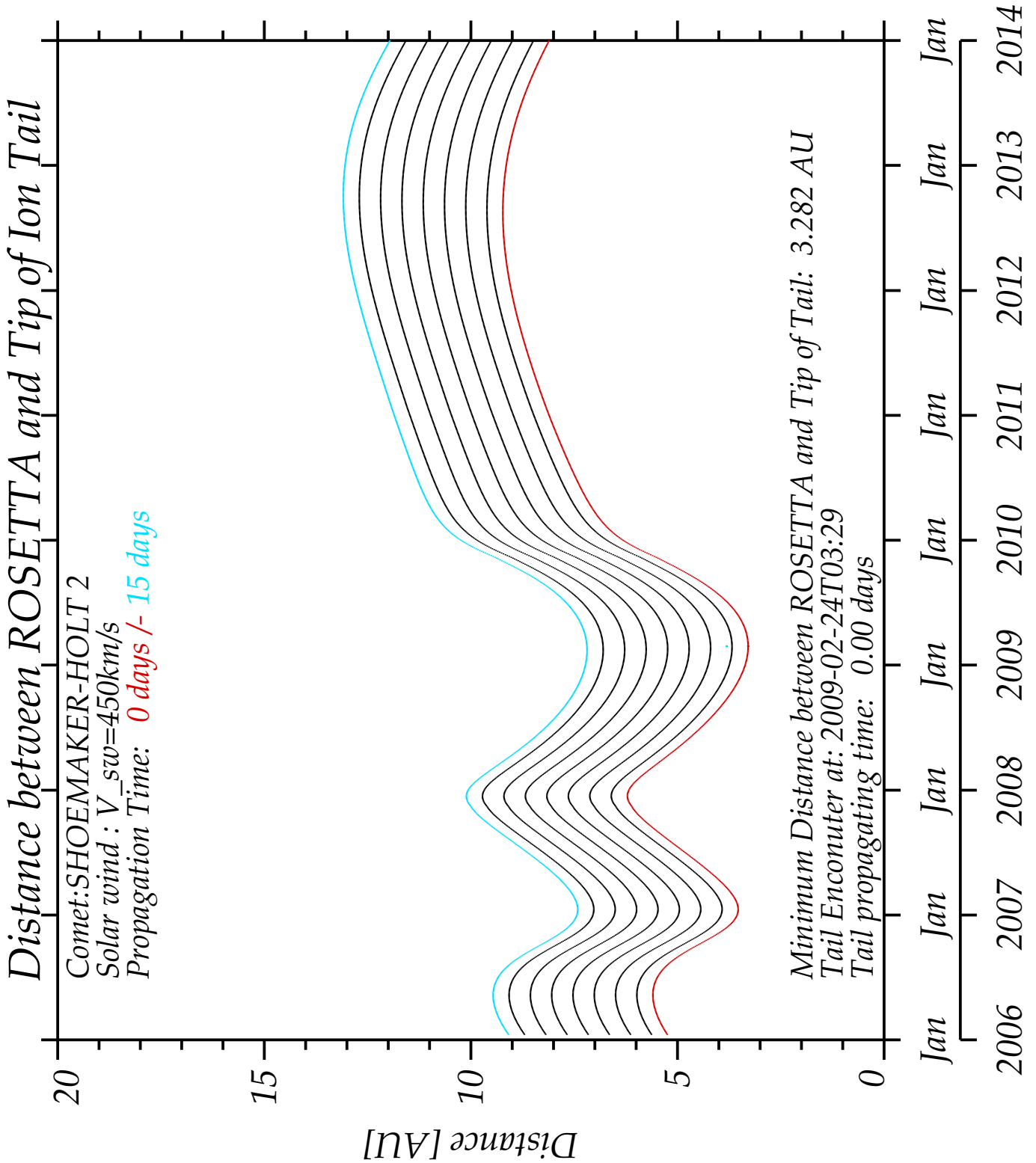


Figure 247: Minimum Distances: ROSETTA - SHOEMAKER-HOLT 2

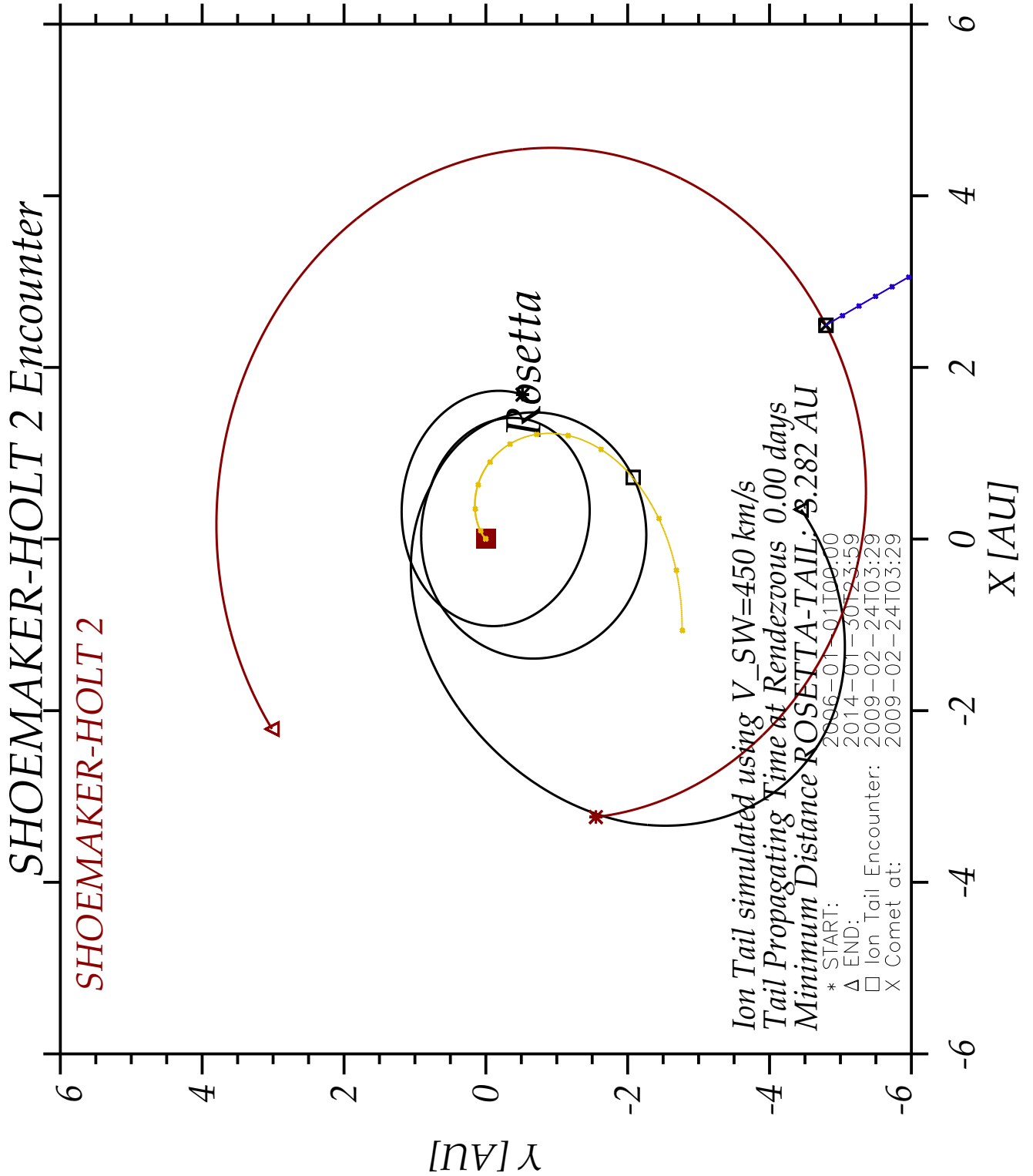


Figure 248: Overview: ROSETTA - SHOEMAKER-HOLT 2

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## **127 Comet 122P/DE-VICO**

<b>Comet: 122P/DE-VICO</b>
<b>No Encounter below 0.2000AU</b>

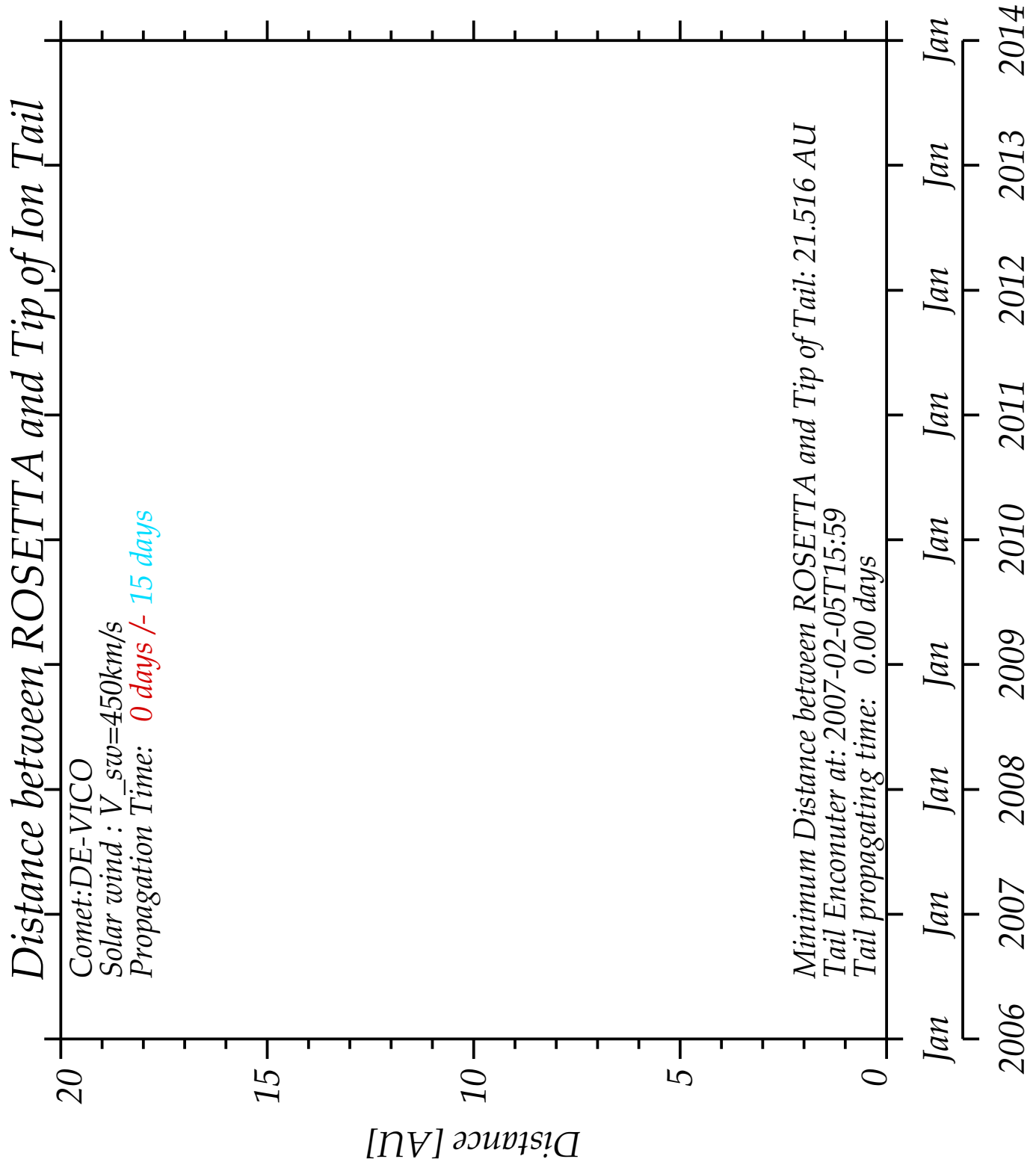


Figure 249: Minimum Distances: ROSETTA - DE-VICO



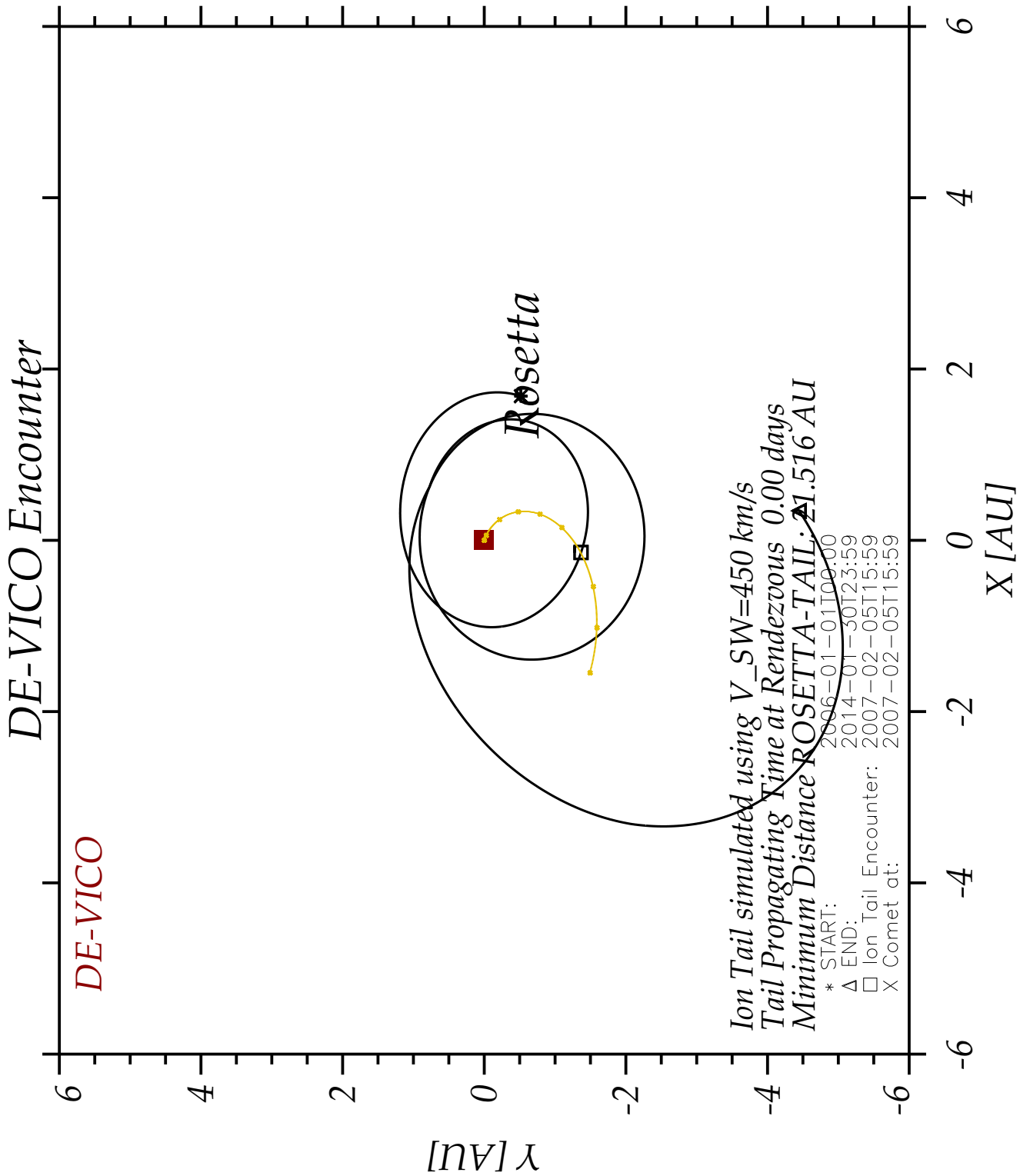


Figure 250: Overview: ROSETTA - DE-VICO

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## 128 Comet 123P/WEST-HARTLEY

<b>Comet: 123P/WEST-HARTLEY</b>
<b>No Encounter below 0.2000AU</b>

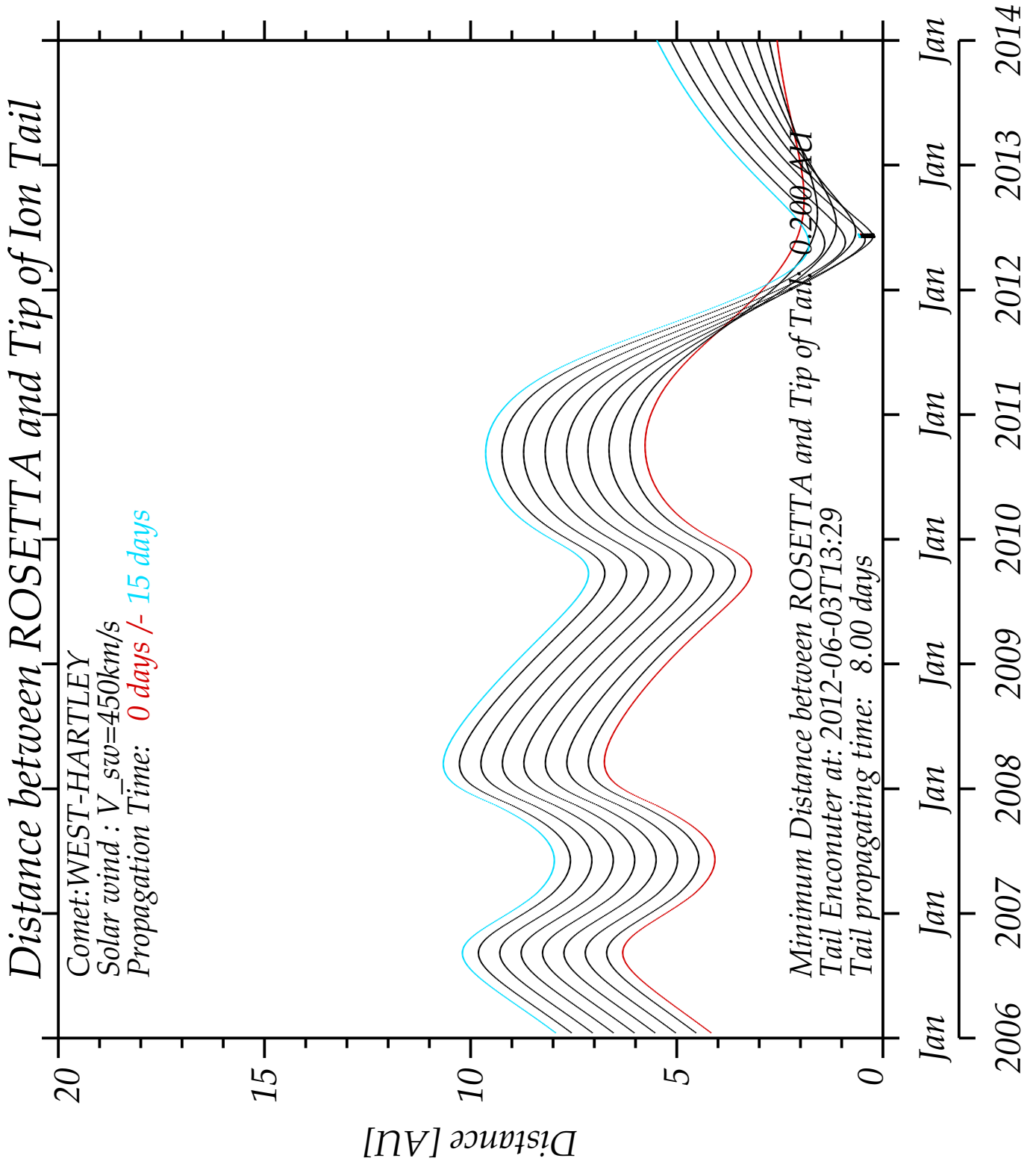


Figure 251: Minimum Distances: ROSETTA - WEST-HARTLEY

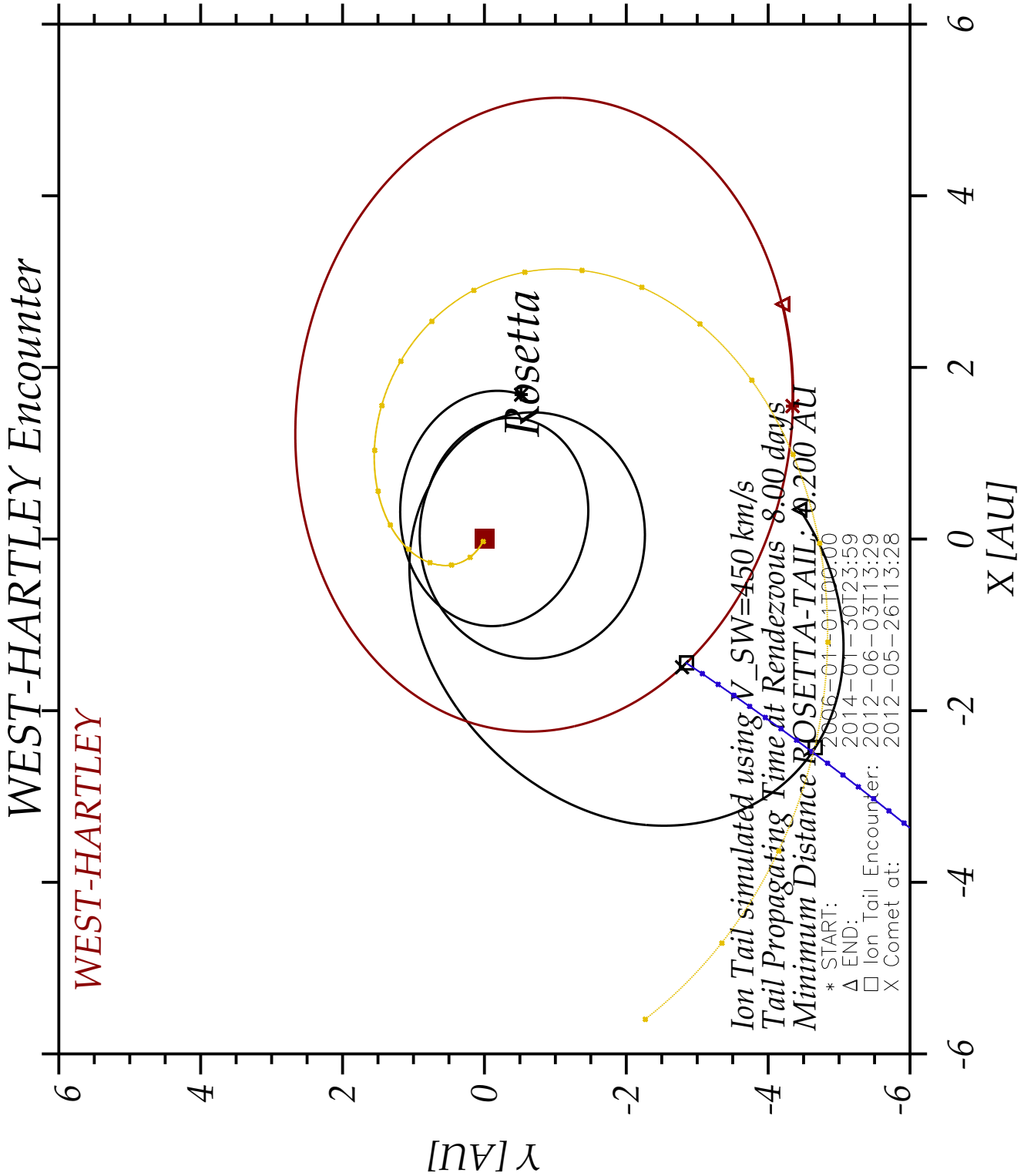


Figure 252: Overview: ROSETTA - WEST-HARTLEY

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## 129 Comet 124P/MRKOS

<b>Comet: 124P/MRKOS</b>
<b>No Encounter below 0.2000AU</b>

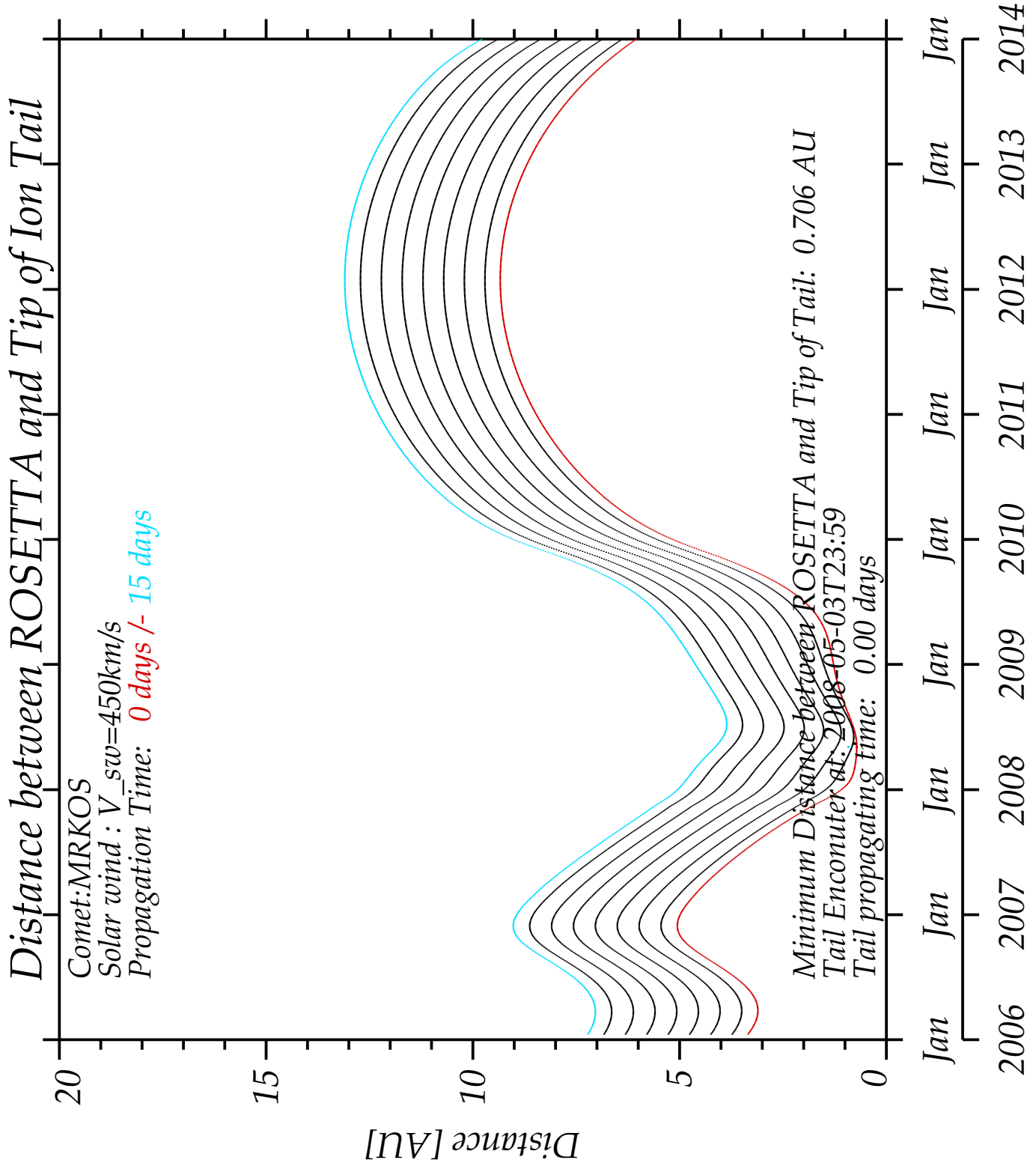


Figure 253: Minimum Distances: ROSETTA - MRKOS

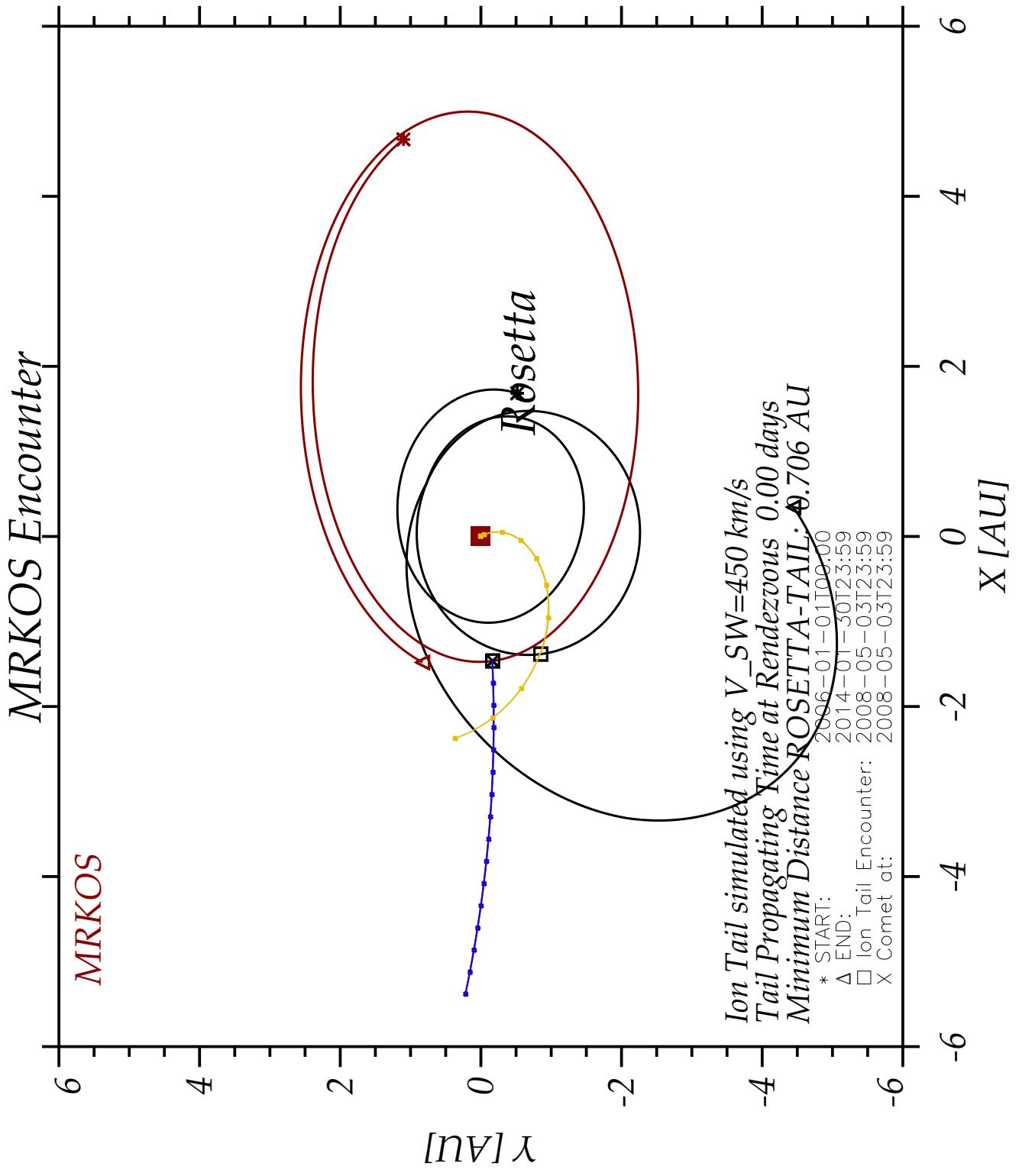


Figure 254: Overview: ROSETTA - MRKOS

<p style="text-align: center;">R O S E T T A</p>	<p>Document: RO-IGEP-TR-0020 Issue: 1 Revision: 2</p>
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## 130 Comet 125P/SPACEWATCH

<p><b>Comet: 125P/SPACEWATCH</b></p>
<p><b>No Encounter below 0.2000AU</b></p>



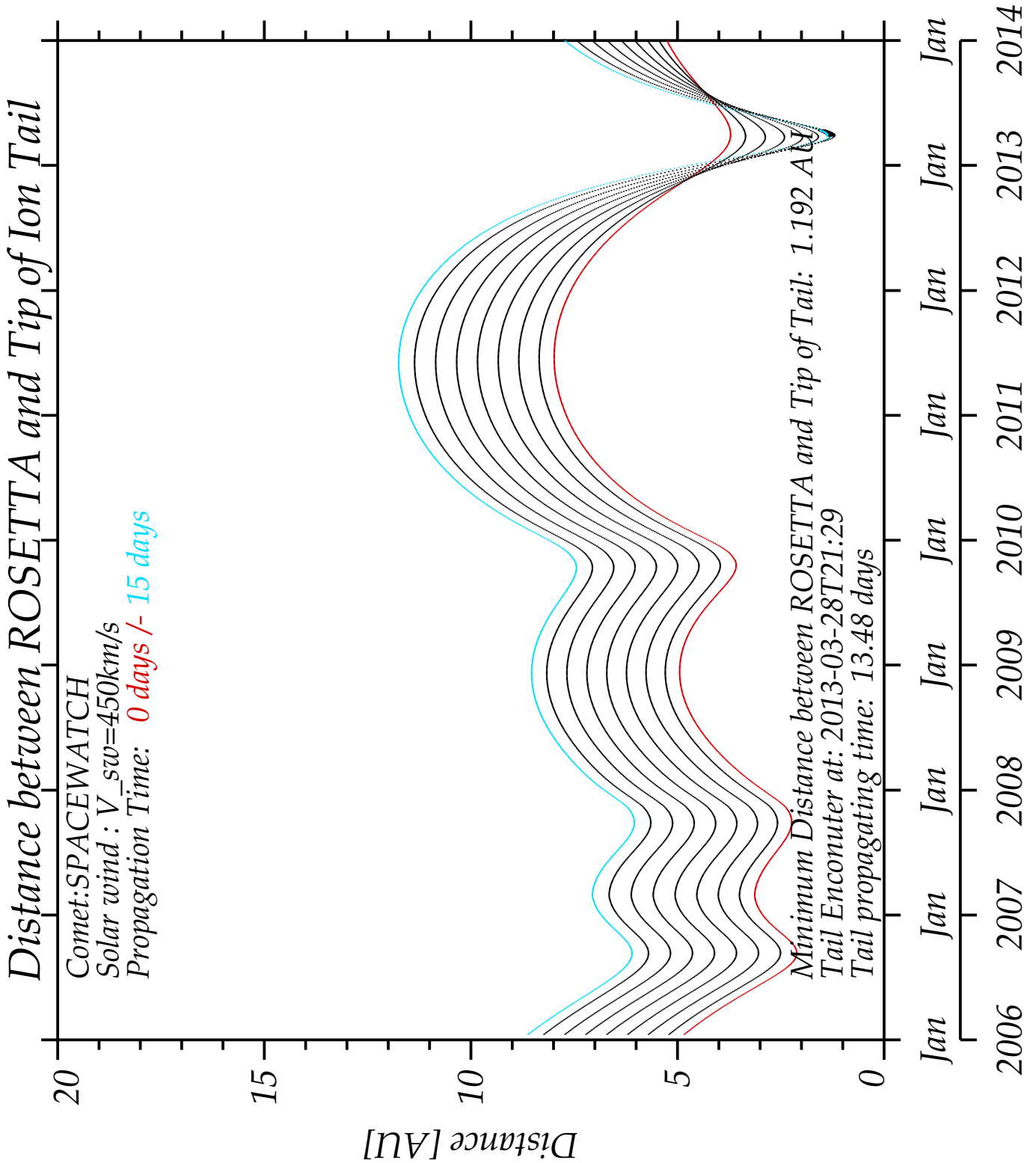


Figure 255: Minimum Distances: ROSETTA - SPACEWATCH

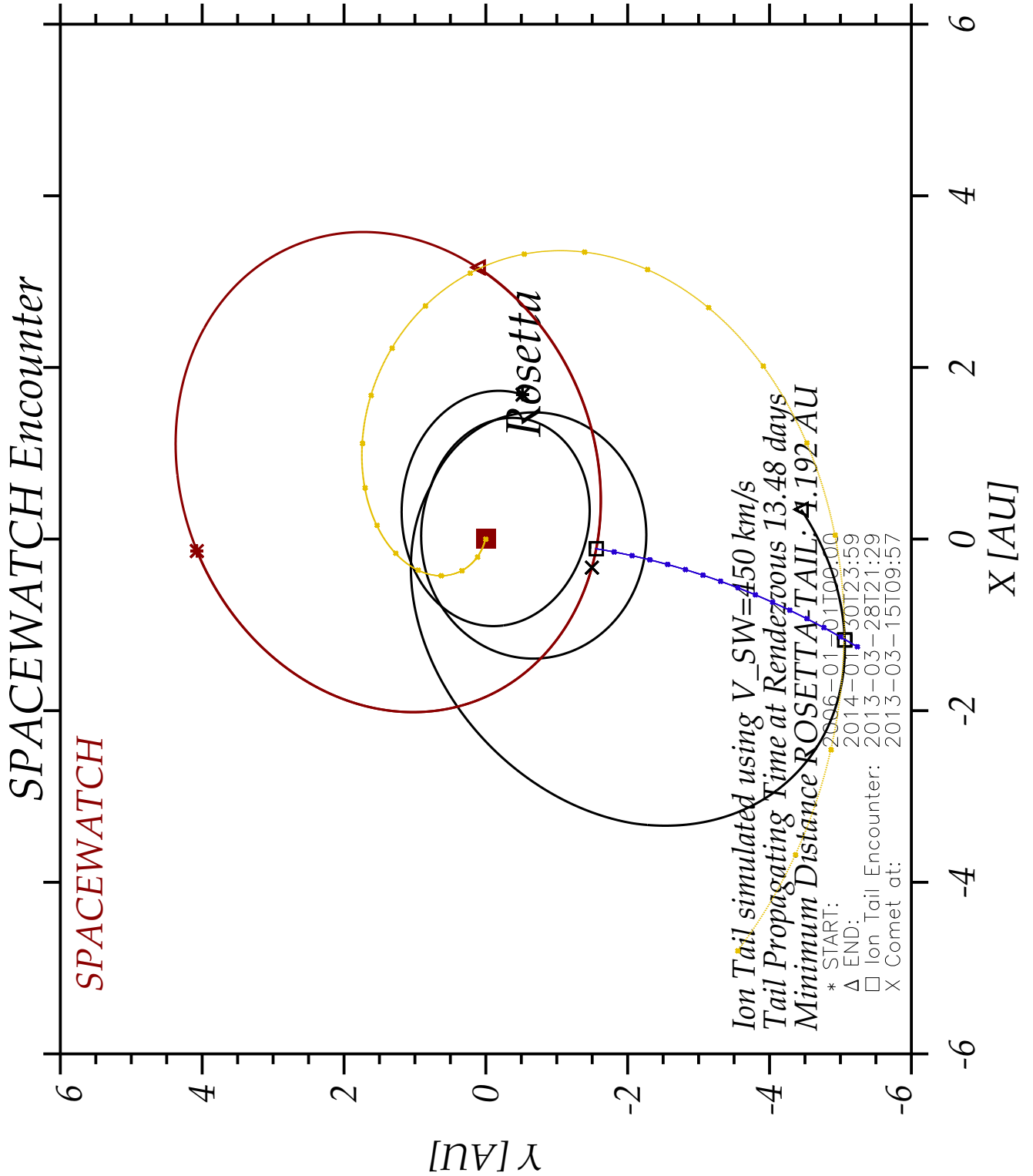


Figure 256: Overview: ROSETTA - SPACEWATCH

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## **131 Comet 126P/IRAS**

<b>Comet: 126P/IRAS</b>
<b>No Encounter below 0.2000AU</b>

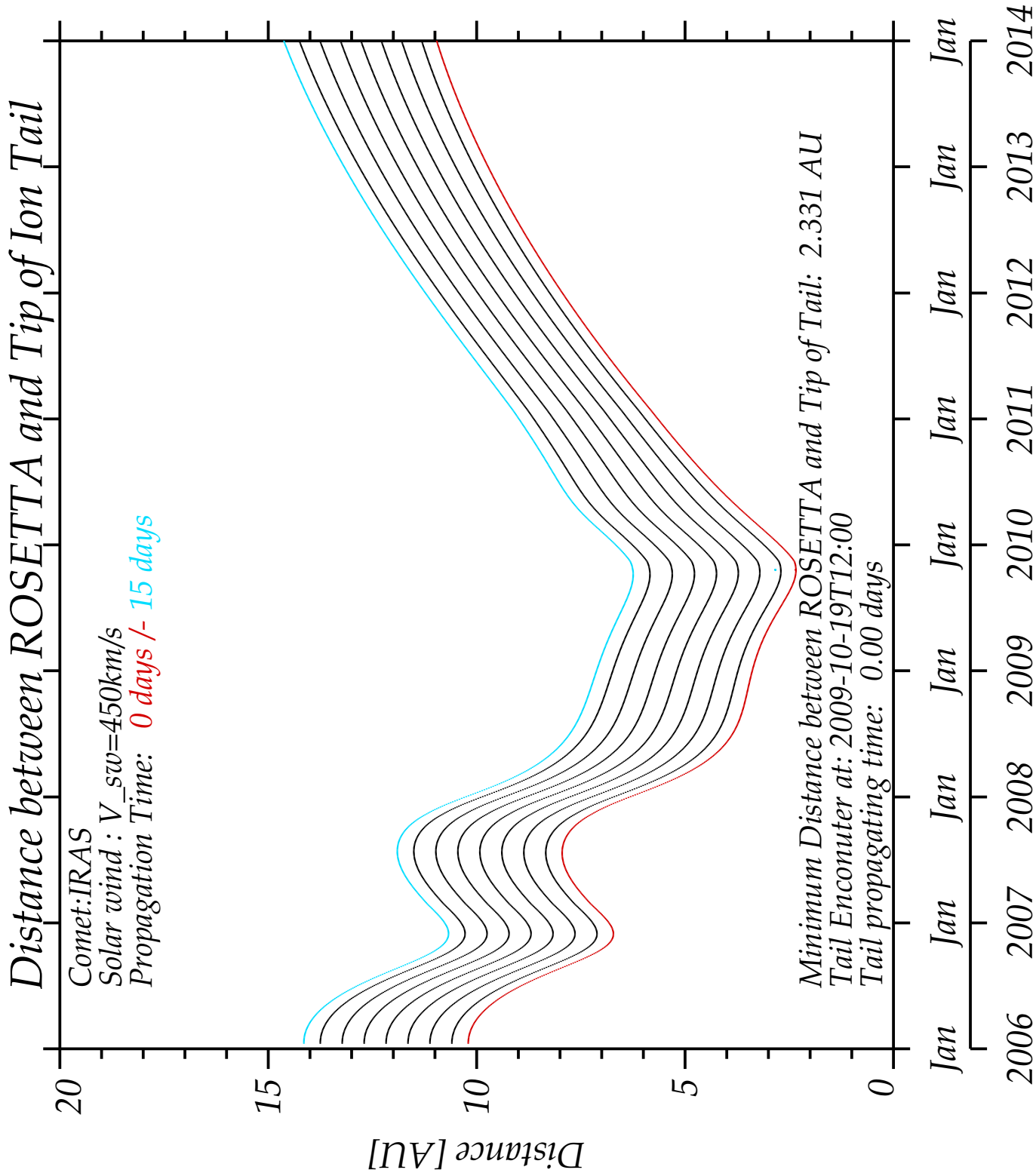


Figure 257: Minimum Distances: ROSETTA - IRAS

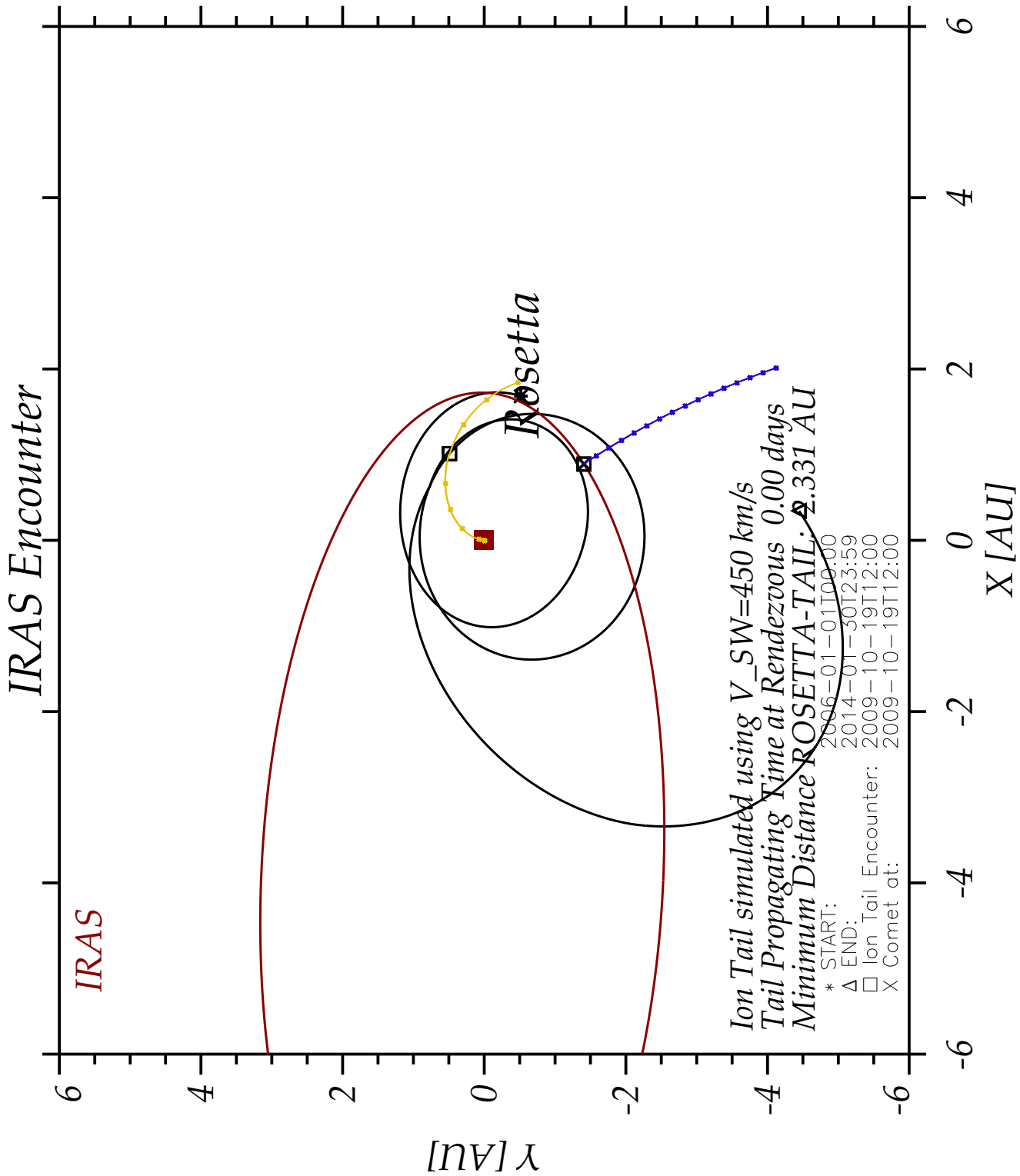


Figure 258: Overview: ROSETTA - IRAS

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## **132 Comet 127P/HOLT-OLMSTEAD**

<b>Comet: 127P/HOLT-OLMSTEAD</b>
<b>No Encounter below 0.2000AU</b>

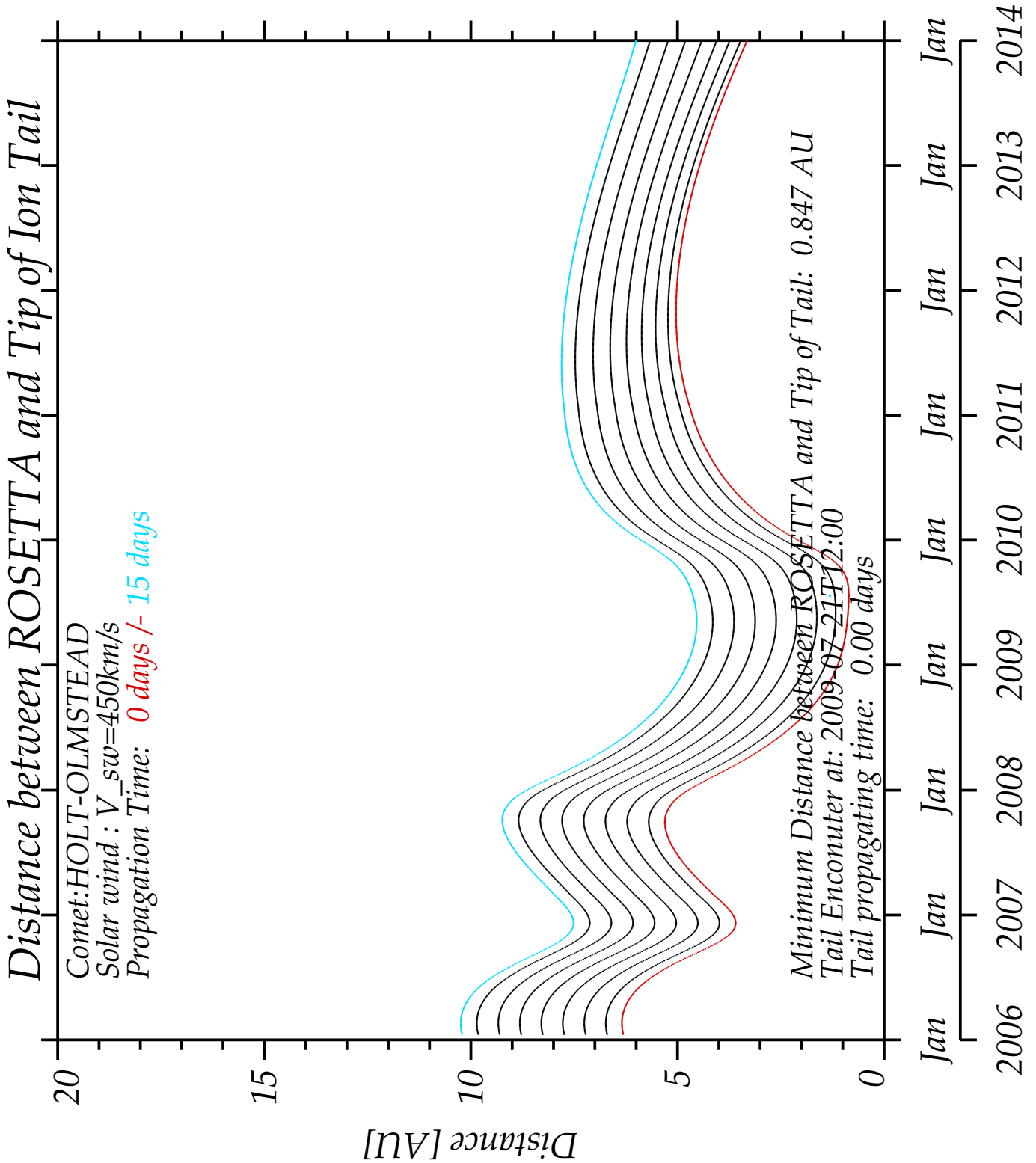


Figure 259: Minimum Distances: ROSETTA - HOLT-OLMSTEAD

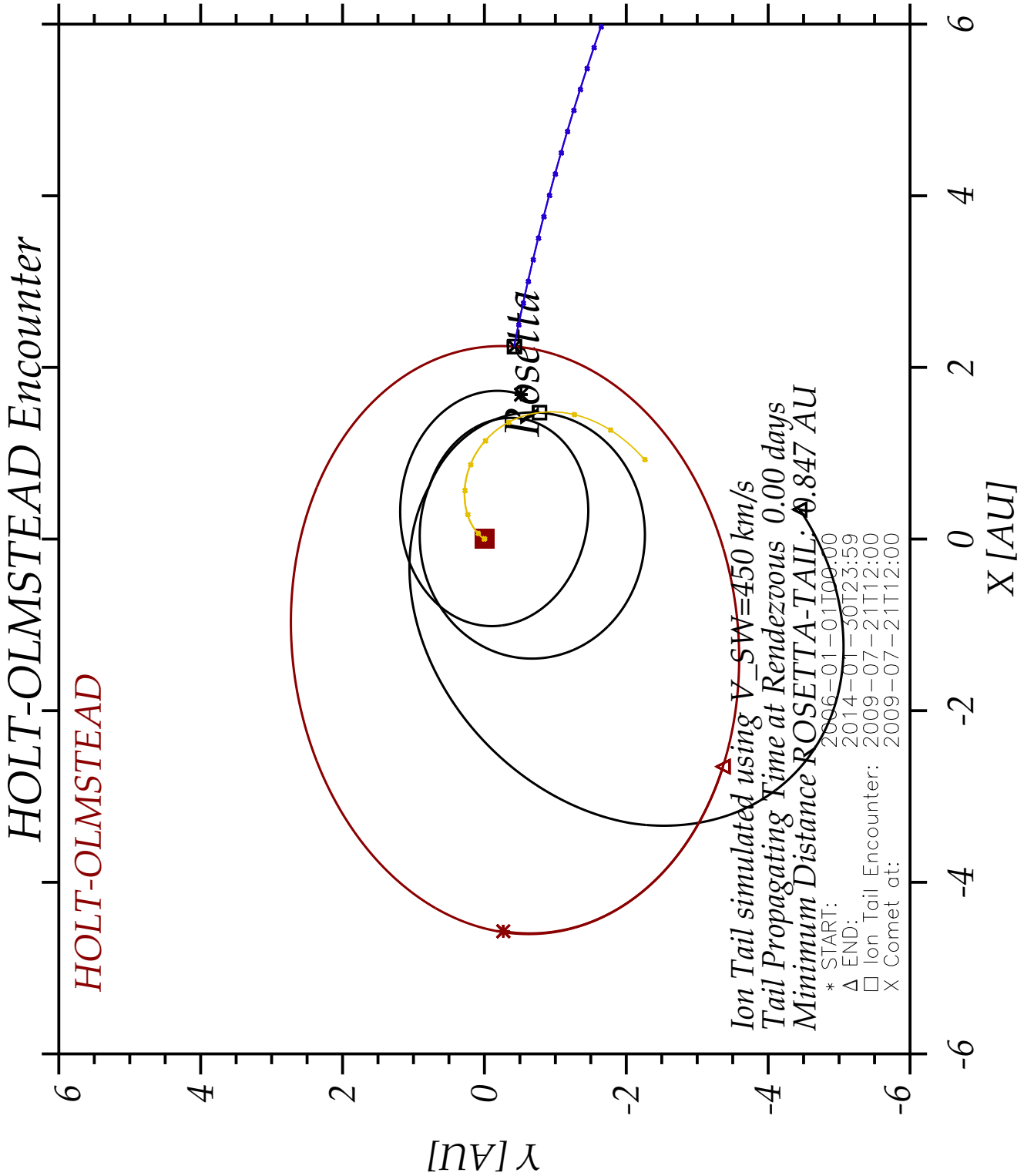


Figure 260: Overview: ROSETTA - HOLT-OLMSTEAD



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### **133 Comet 128P-A/SHOEMAKER-HOLT 1A**

<b>Comet: 128P-A/SHOEMAKER-HOLT 1A</b>
<b>No Encounter below 0.2000AU</b>

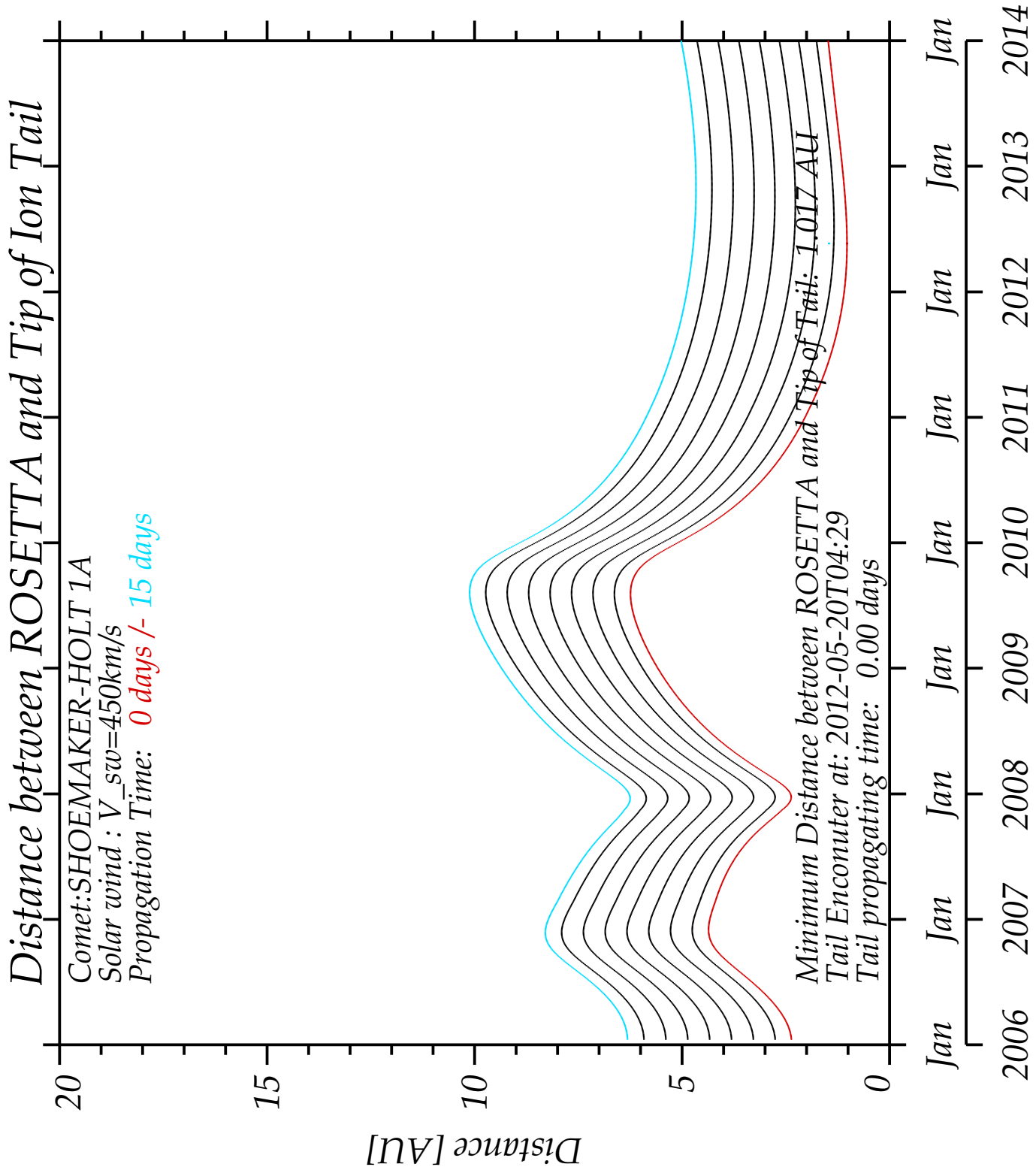


Figure 261: Minimum Distances: ROSETTA - SHOEMAKER-HOLT 1A

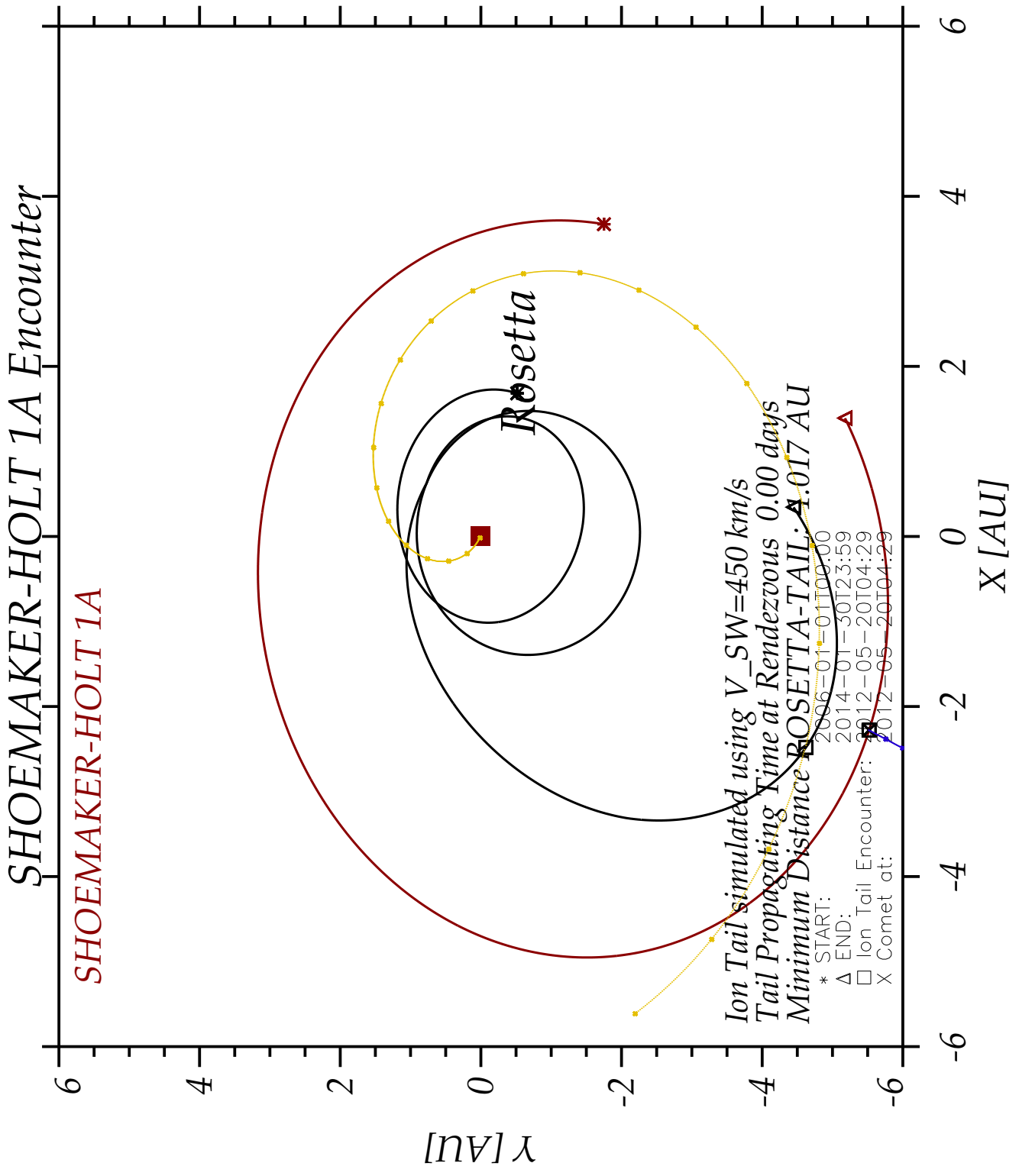


Figure 262: Overview: ROSETTA - SHOEMAKER-HOLT 1A

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## **134 Comet 128P/SHOEMAKER-HOLT 1**

<b>Comet: 128P/SHOEMAKER-HOLT 1</b>
<b>No Encounter below 0.2000AU</b>

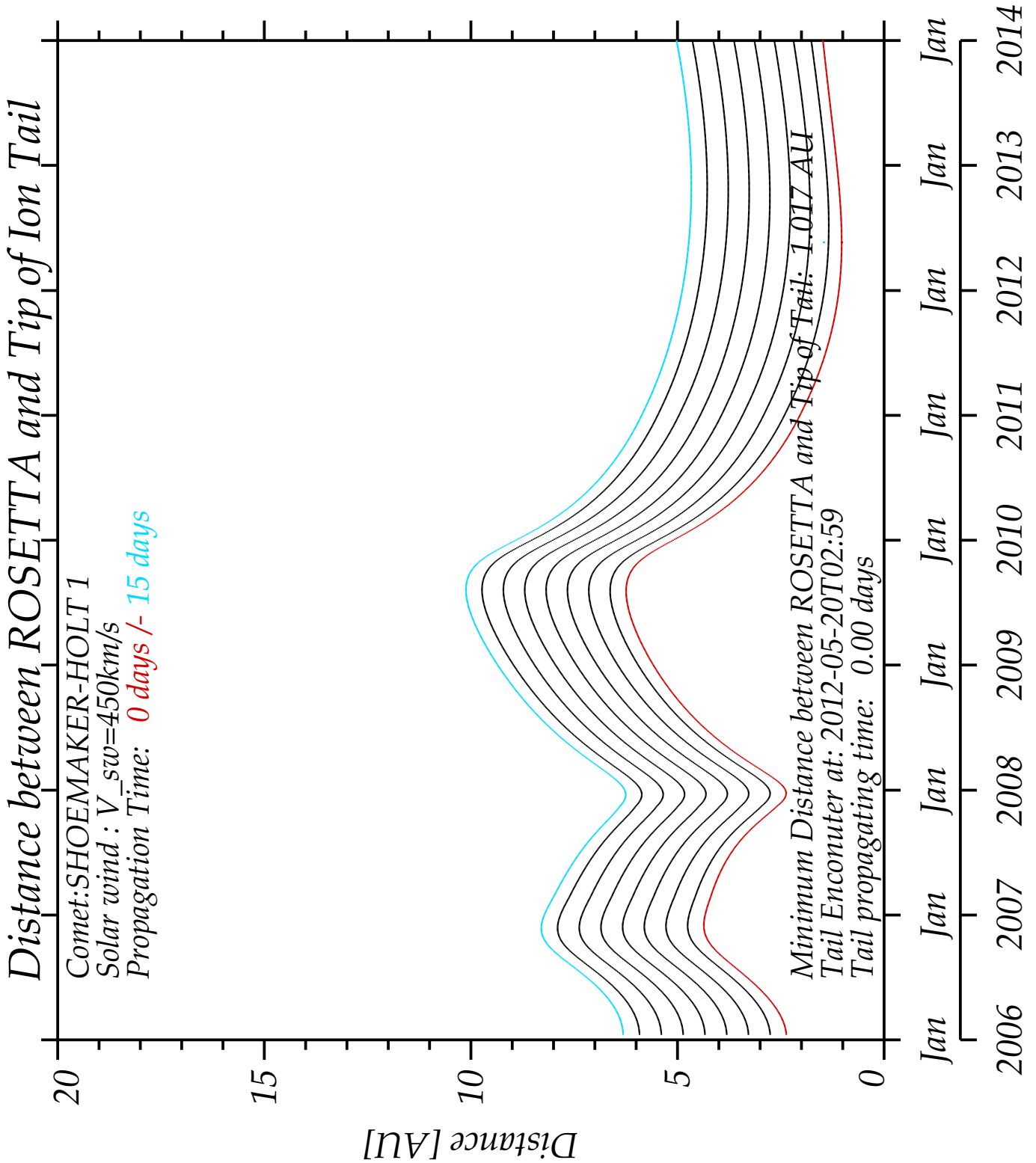


Figure 263: Minimum Distances: ROSETTA - SHOEMAKER-HOLT 1

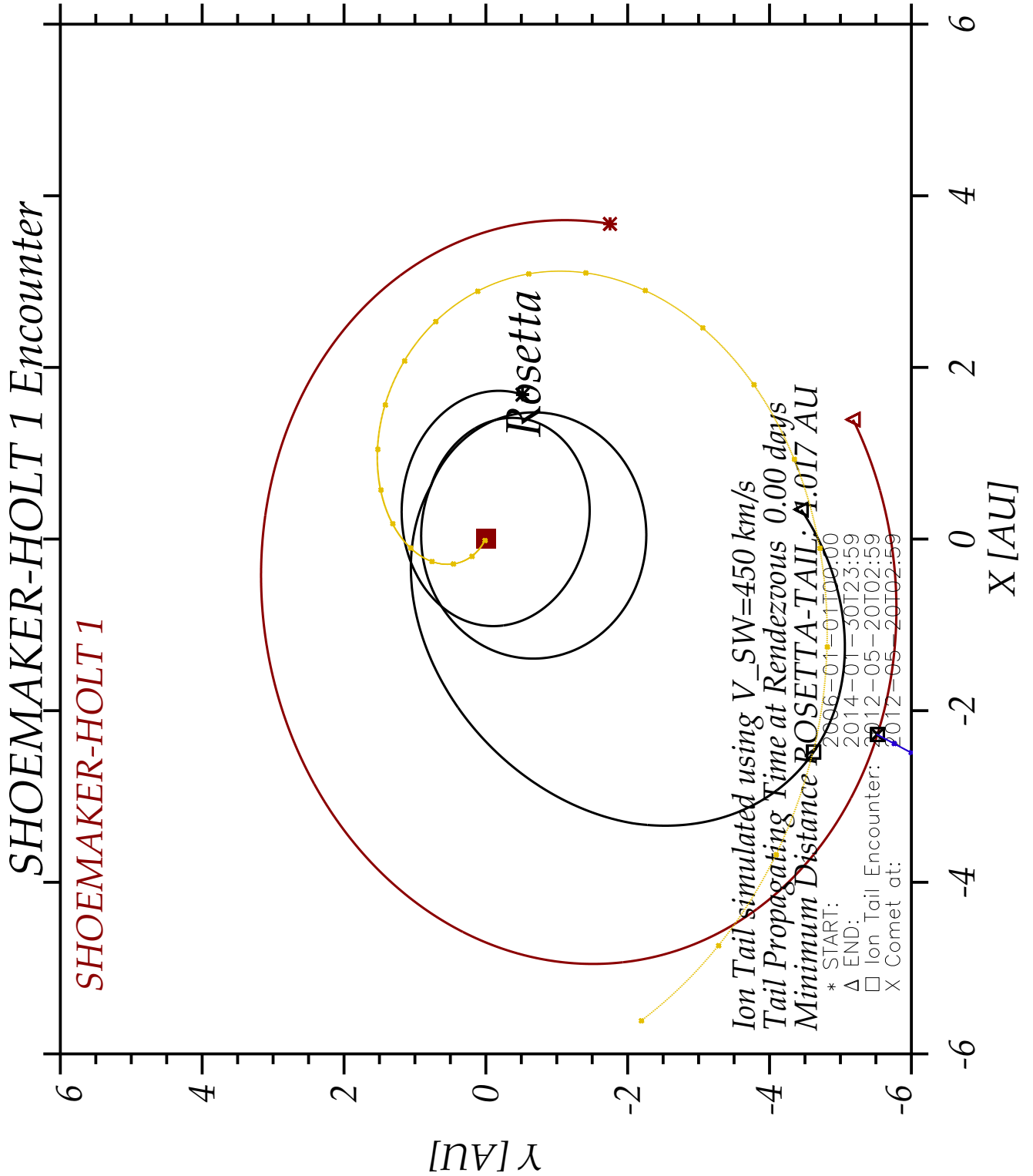


Figure 264: Overview: ROSETTA - SHOEMAKER-HOLT 1

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## 135 Comet 129P/SHOEMAKER-LEVY 3

<b>Comet: 129P/SHOEMAKER-LEVY 3</b>
<b>No Encounter below 0.2000AU</b>

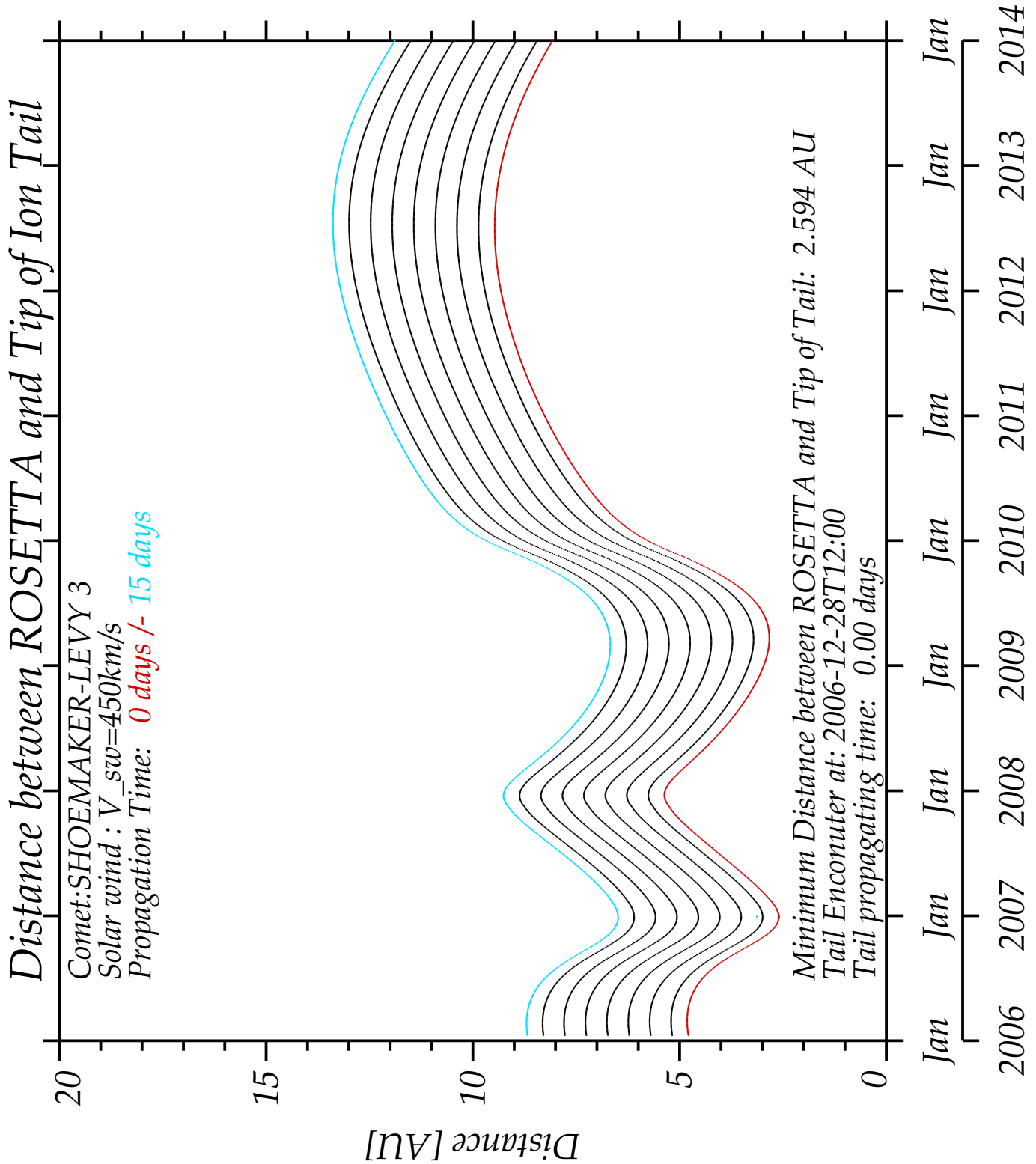


Figure 265: Minimum Distances: ROSETTA - SHOEMAKER-LEVY 3



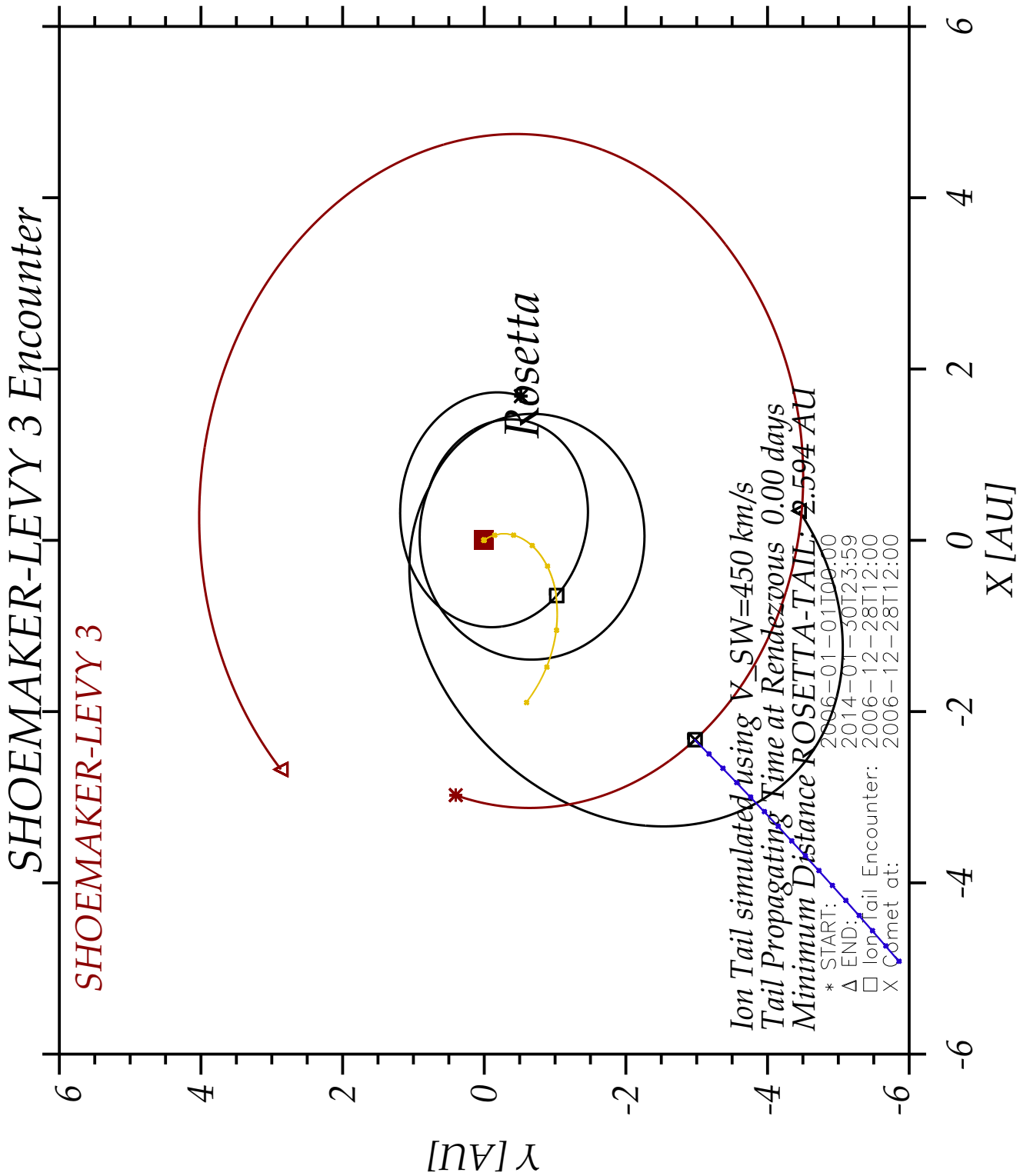


Figure 266: Overview: ROSETTA - SHOEMAKER-LEVY 3

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## **136 Comet 130P/MCNAUGHT-HUGHES**

<b>Comet: 130P/MCNAUGHT-HUGHES</b>
<b>No Encounter below 0.2000AU</b>

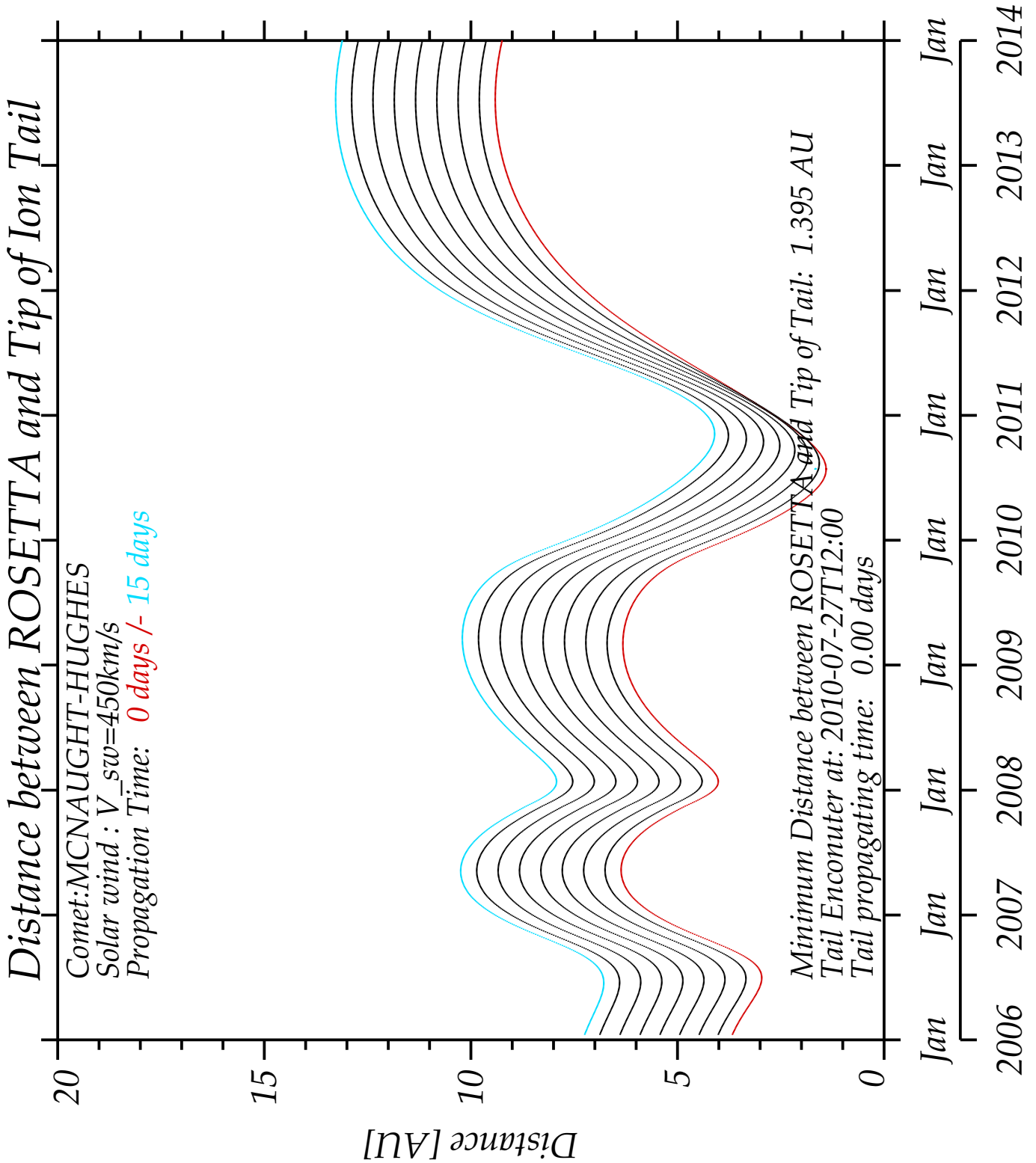


Figure 267: Minimum Distances: ROSETTA - MCNAUGHT-HUGHES

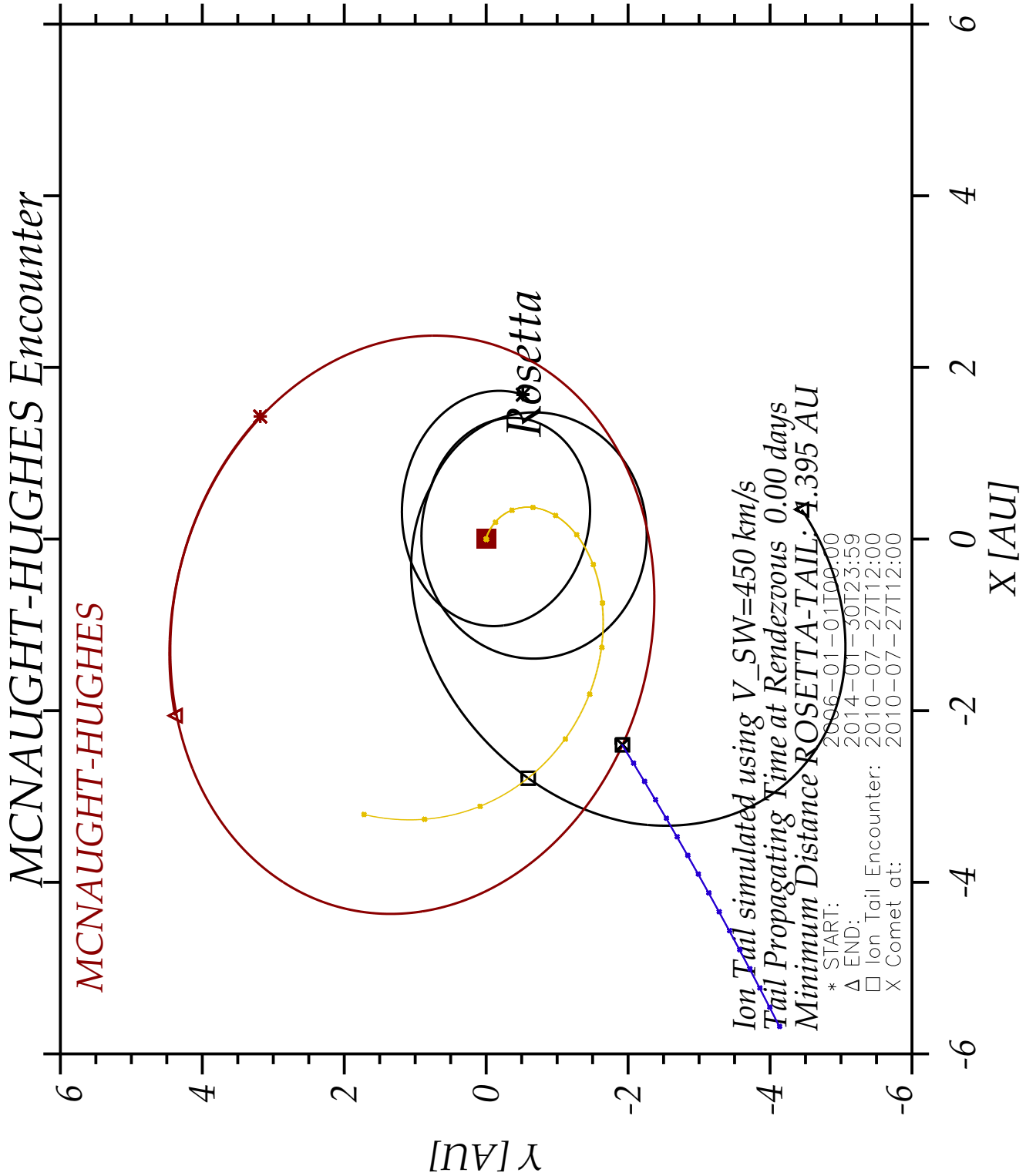


Figure 268: Overview: ROSETTA - MCNAUGHT-HUGHES

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## **137 Comet 131P/MUELLER 2**

<b>Comet: 131P/MUELLER 2</b>
<b>No Encounter below 0.2000AU</b>

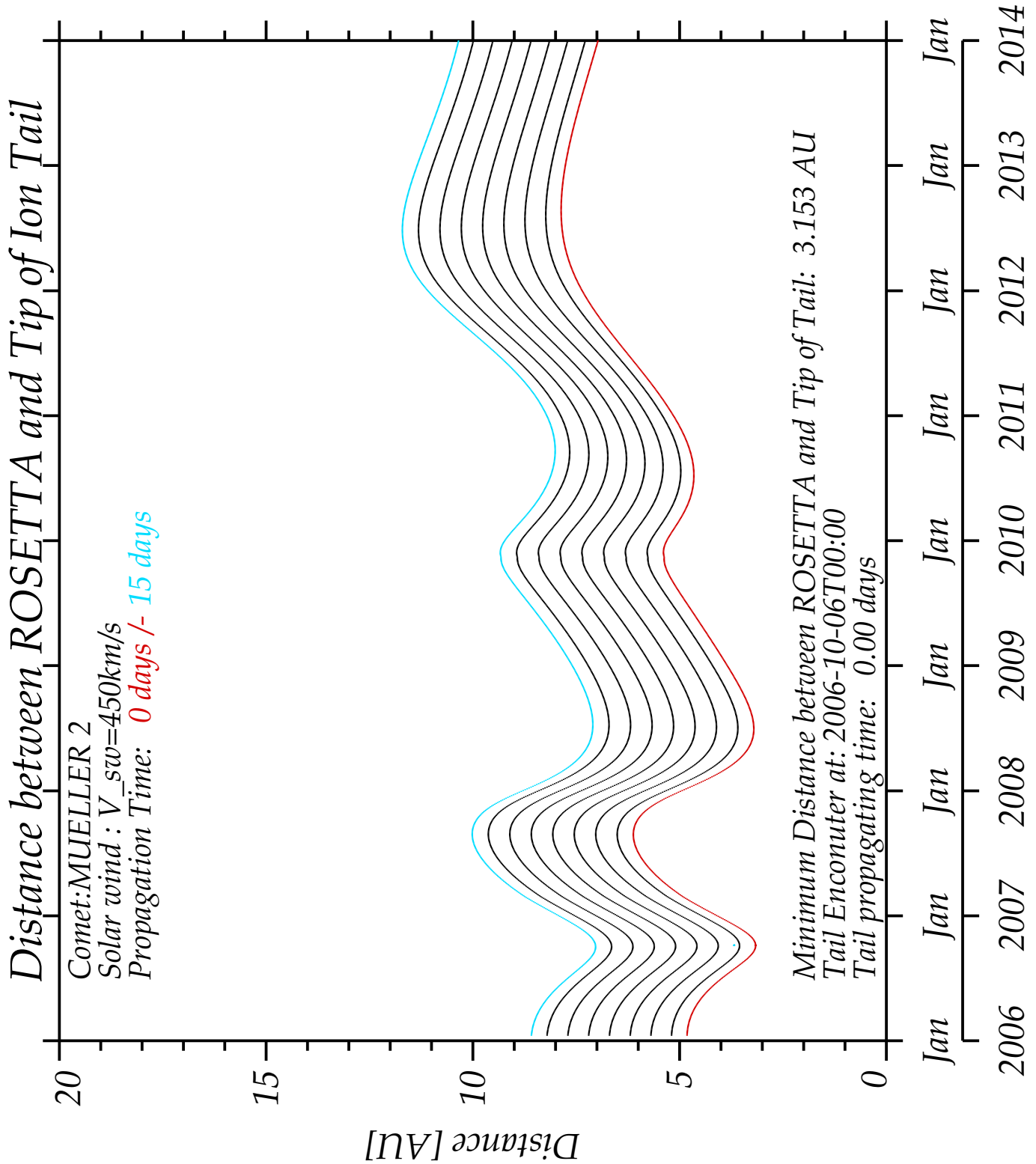


Figure 269: Minimum Distances: ROSETTA - MUELLER 2

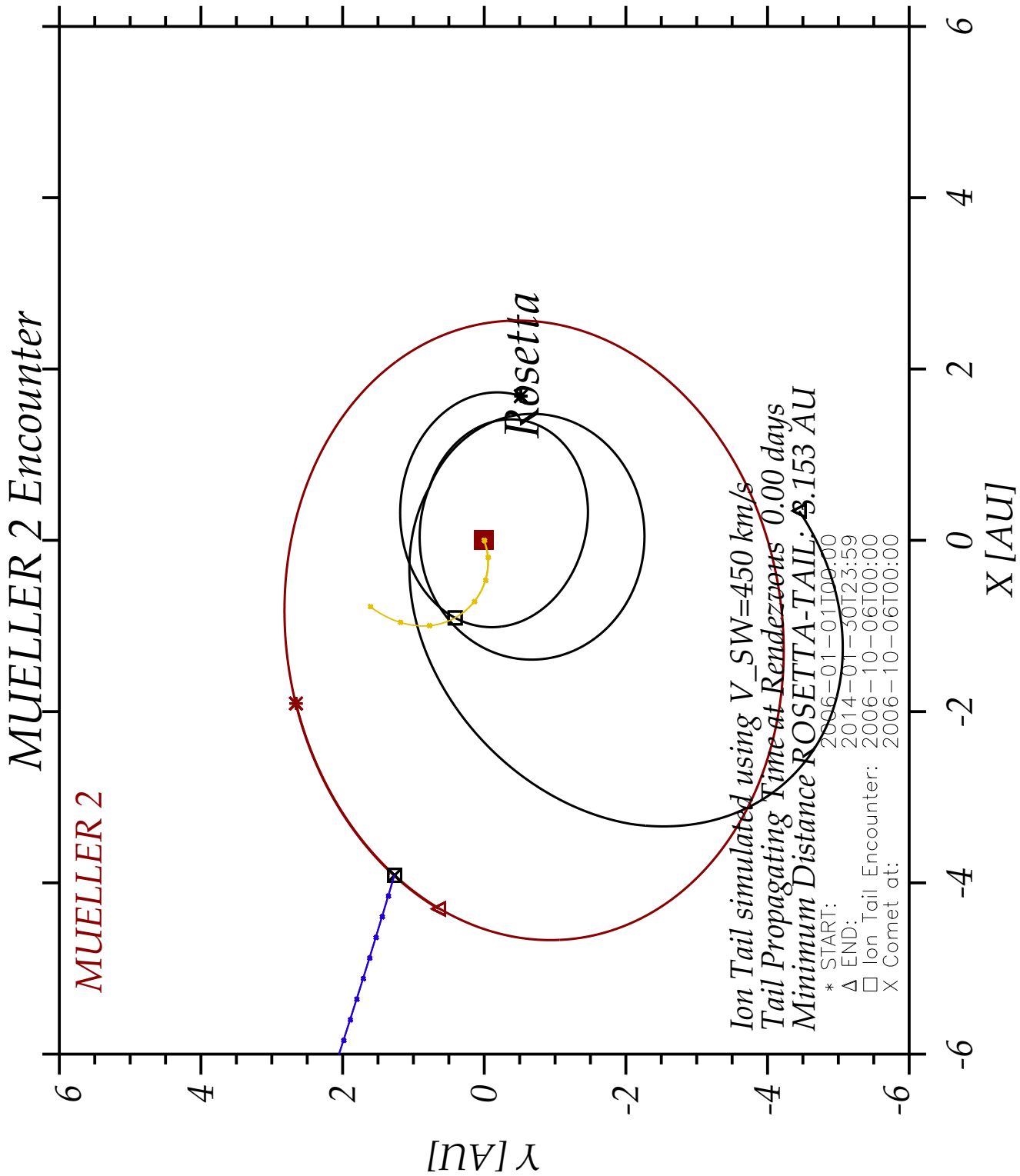


Figure 270: Overview: ROSETTA - MUELLER 2

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## 138 Comet 132P/HELIN-ROMAN-ALU 2

<b>Comet: 132P/HELIN-ROMAN-ALU 2</b>
<b>No Encounter below 0.2000AU</b>



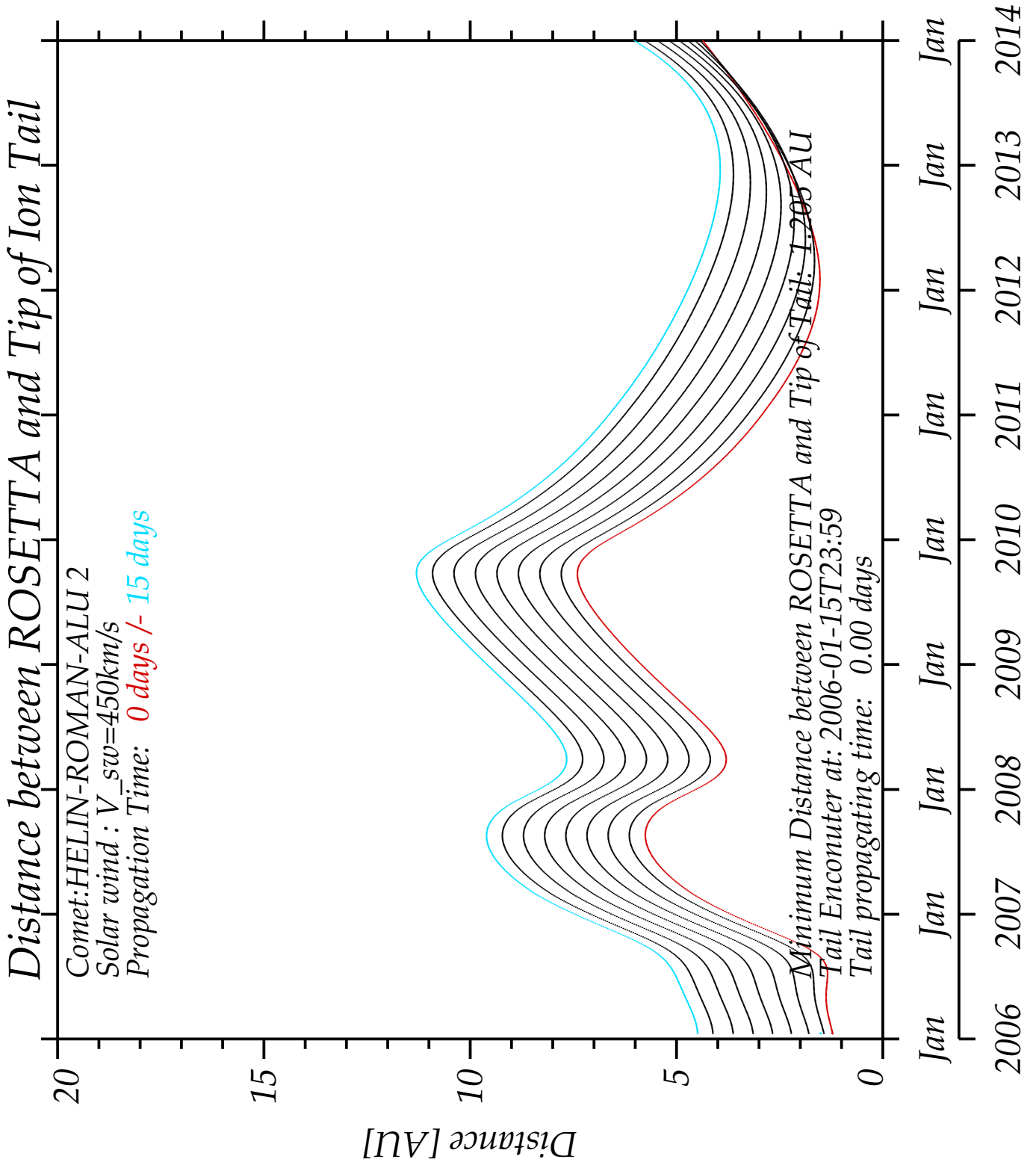


Figure 271: Minimum Distances: ROSETTA - HELIN-ROMAN-ALU 2

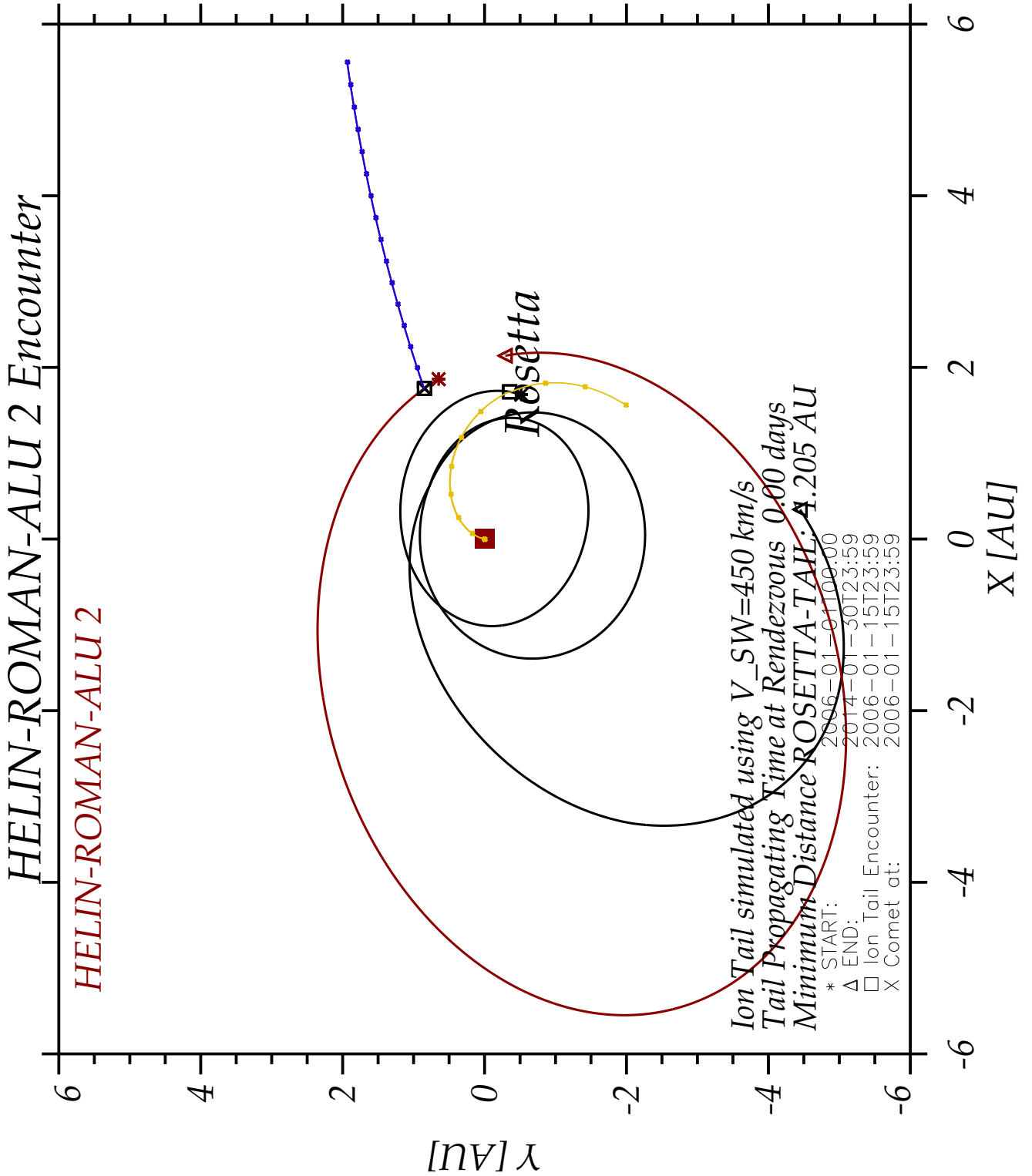


Figure 272: Overview: ROSETTA - HELIN-ROMAN-ALU 2

<h1>ROSETTA</h1>	Document: RO-IGEP-TR-0020 Issue: 1 Revision: 2
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## 139 Comet 133P/ELST-PIZARRO

<b>Comet: 133P/ELST-PIZARRO</b>
<b>No Encounter below 0.2000AU</b>

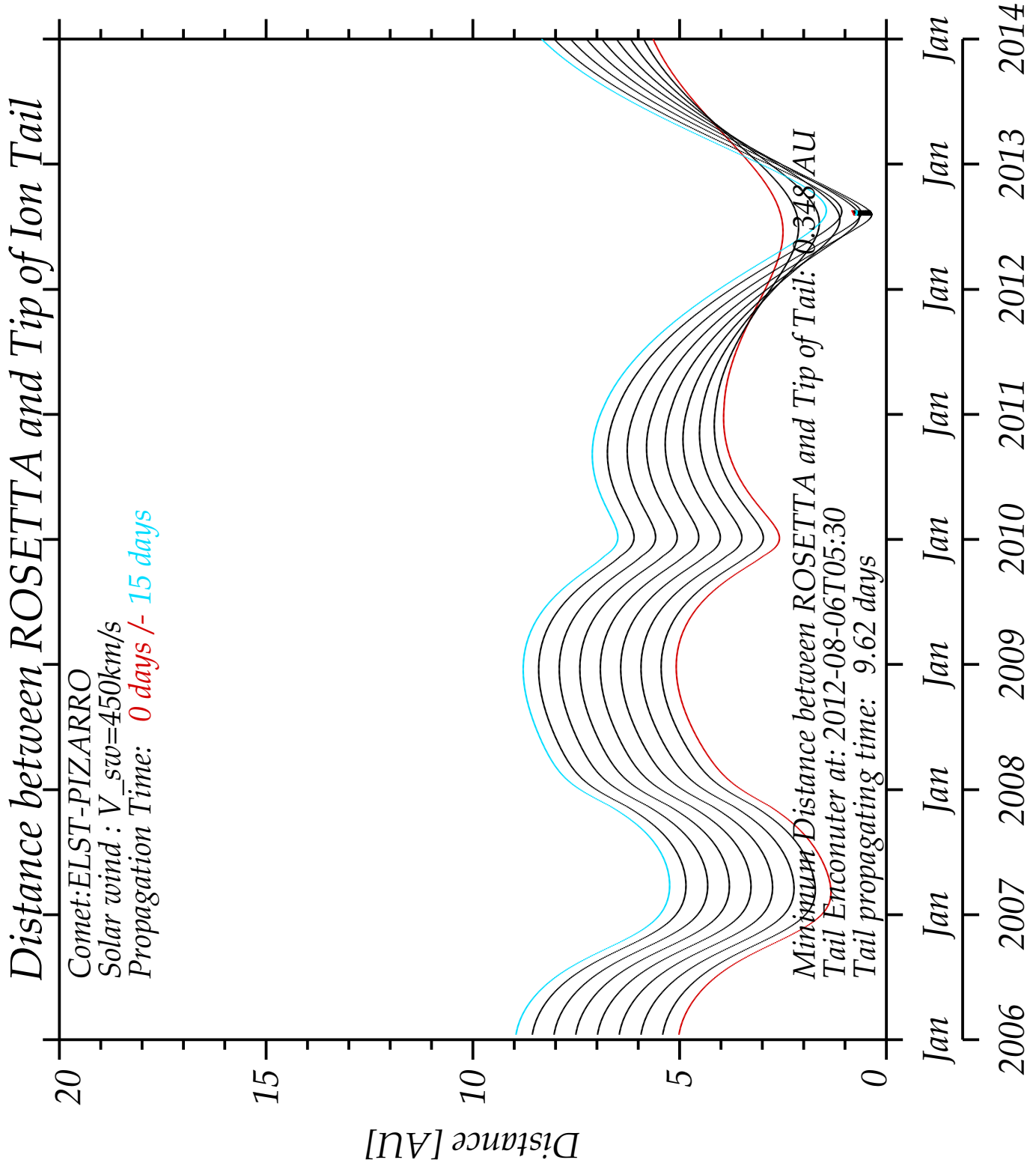


Figure 273: Minimum Distances: ROSETTA - ELST-PIZARRO

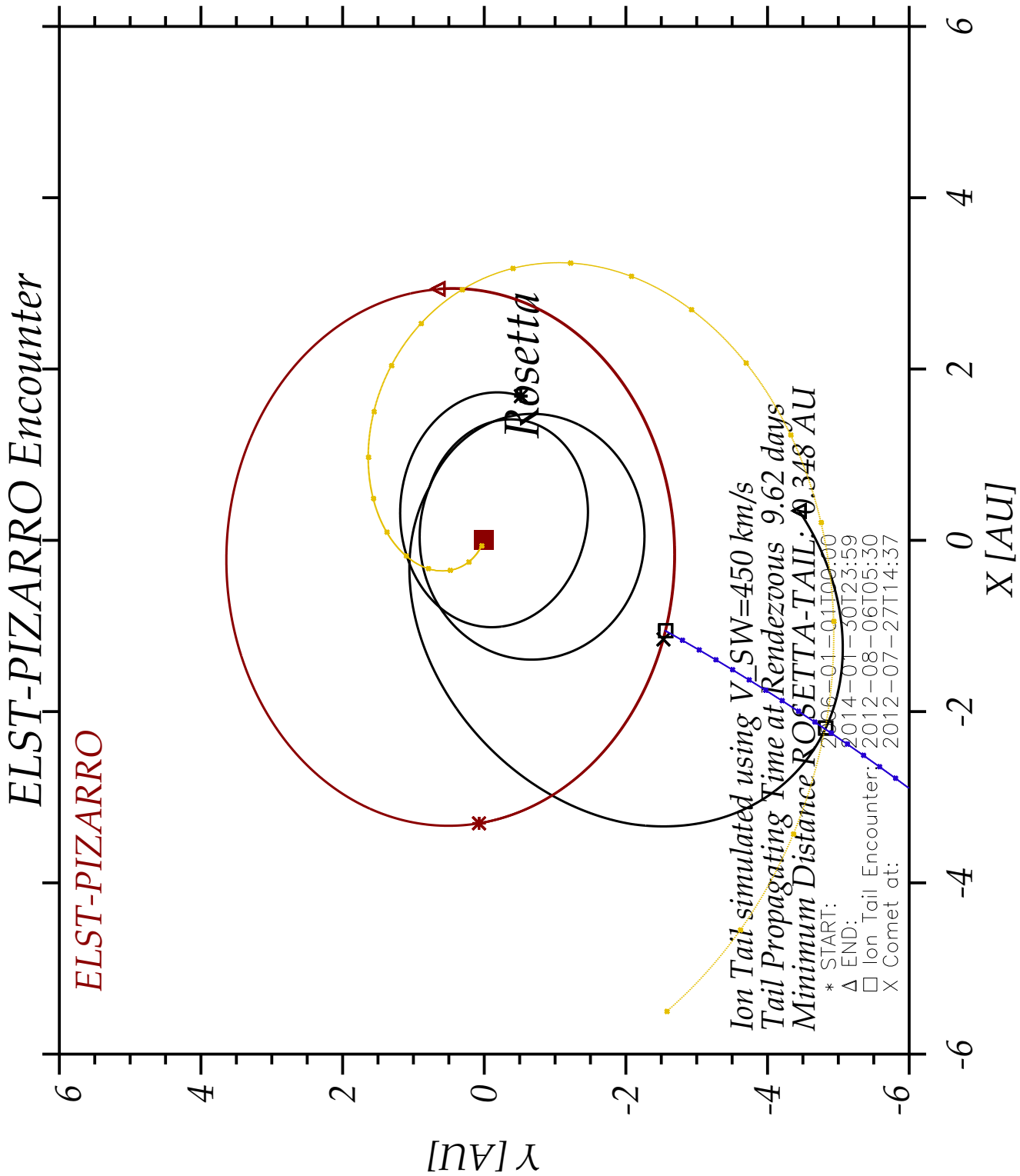


Figure 274: Overview: ROSETTA - ELST-PIZARRO

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## 140 Comet 134P/KOWAL-VAVROVA

<b>Comet: 134P/KOWAL-VAVROVA</b>
<b>No Encounter below 0.2000AU</b>

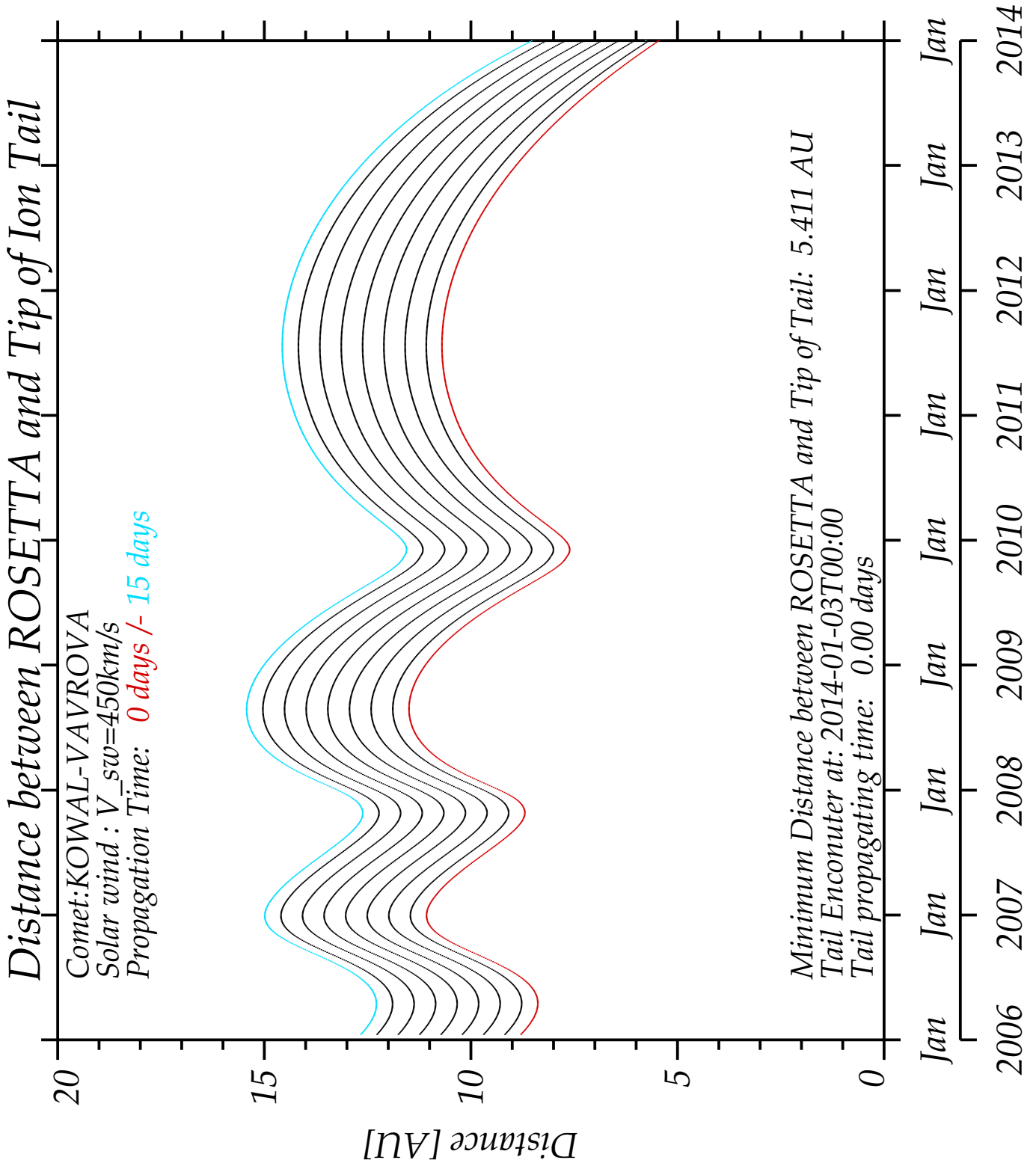


Figure 275: Minimum Distances: ROSETTA - KOWAL-VAVROVA

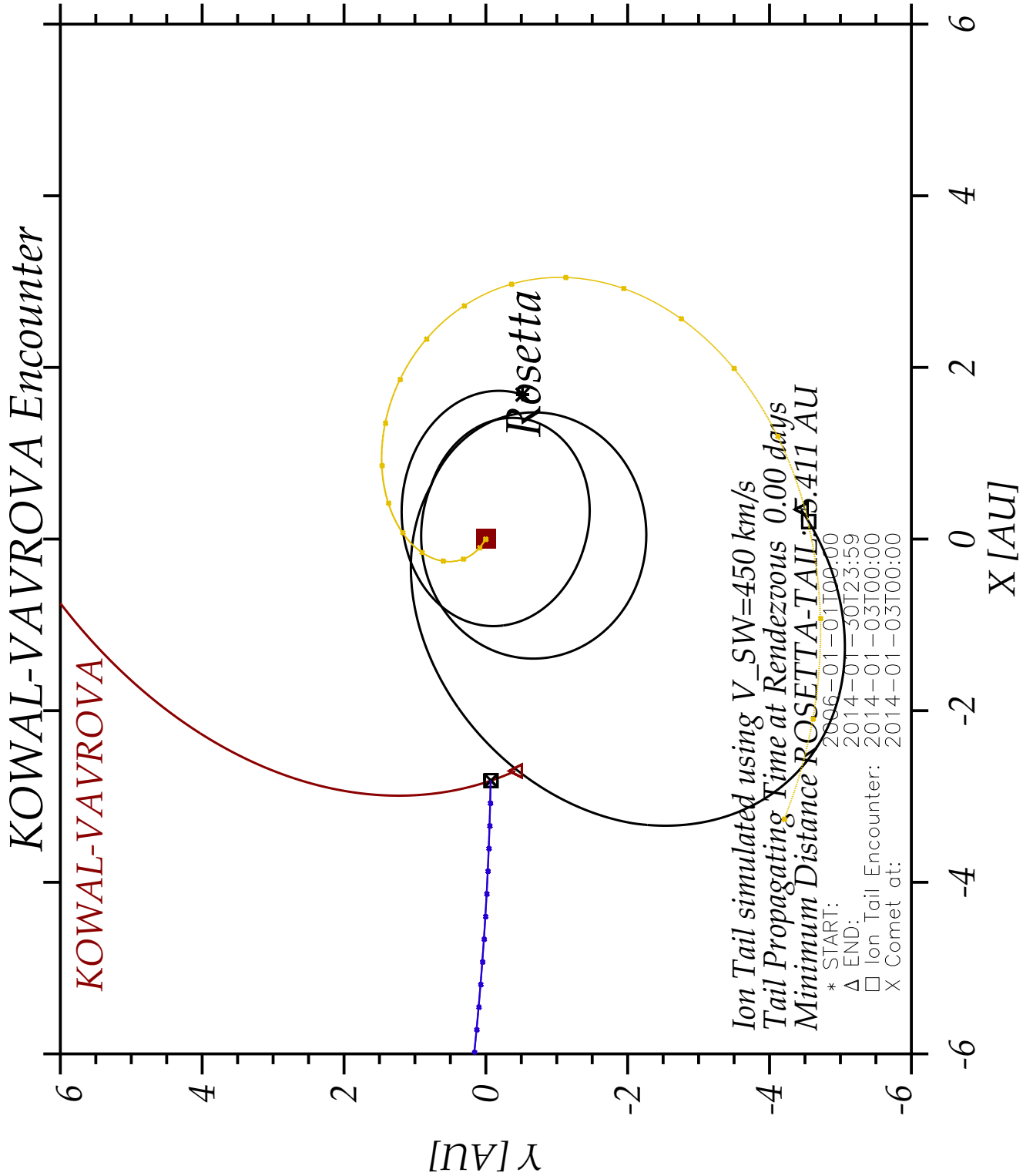


Figure 276: Overview: ROSETTA - KOWAL-VAVROVA



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## 141 Comet 135P/SHOEMAKER-LEVY 8

<b>Comet: 135P/SHOEMAKER-LEVY 8</b>
<b>No Encounter below 0.2000AU</b>

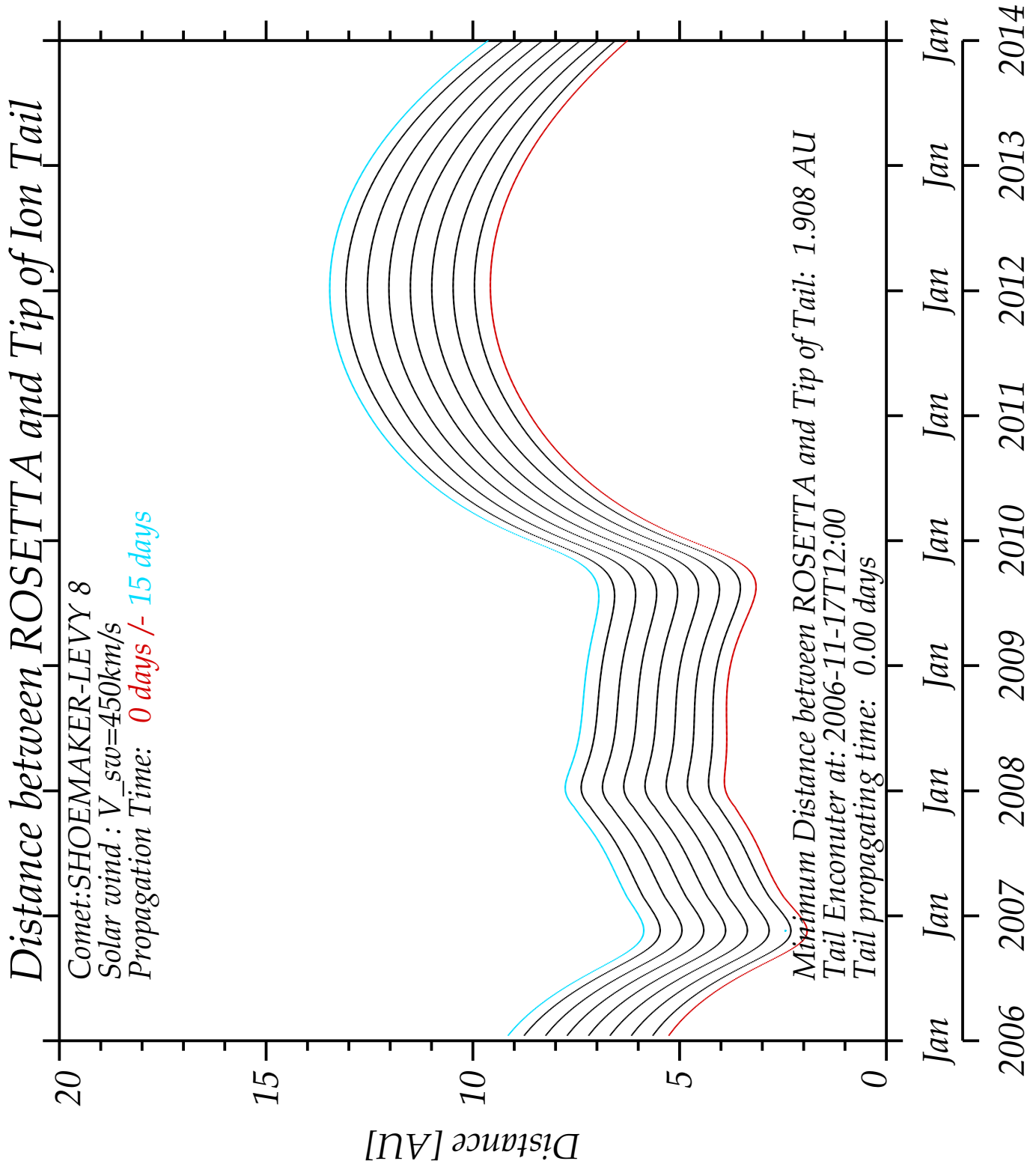


Figure 277: Minimum Distances: ROSETTA - SHOEMAKER-LEVY 8

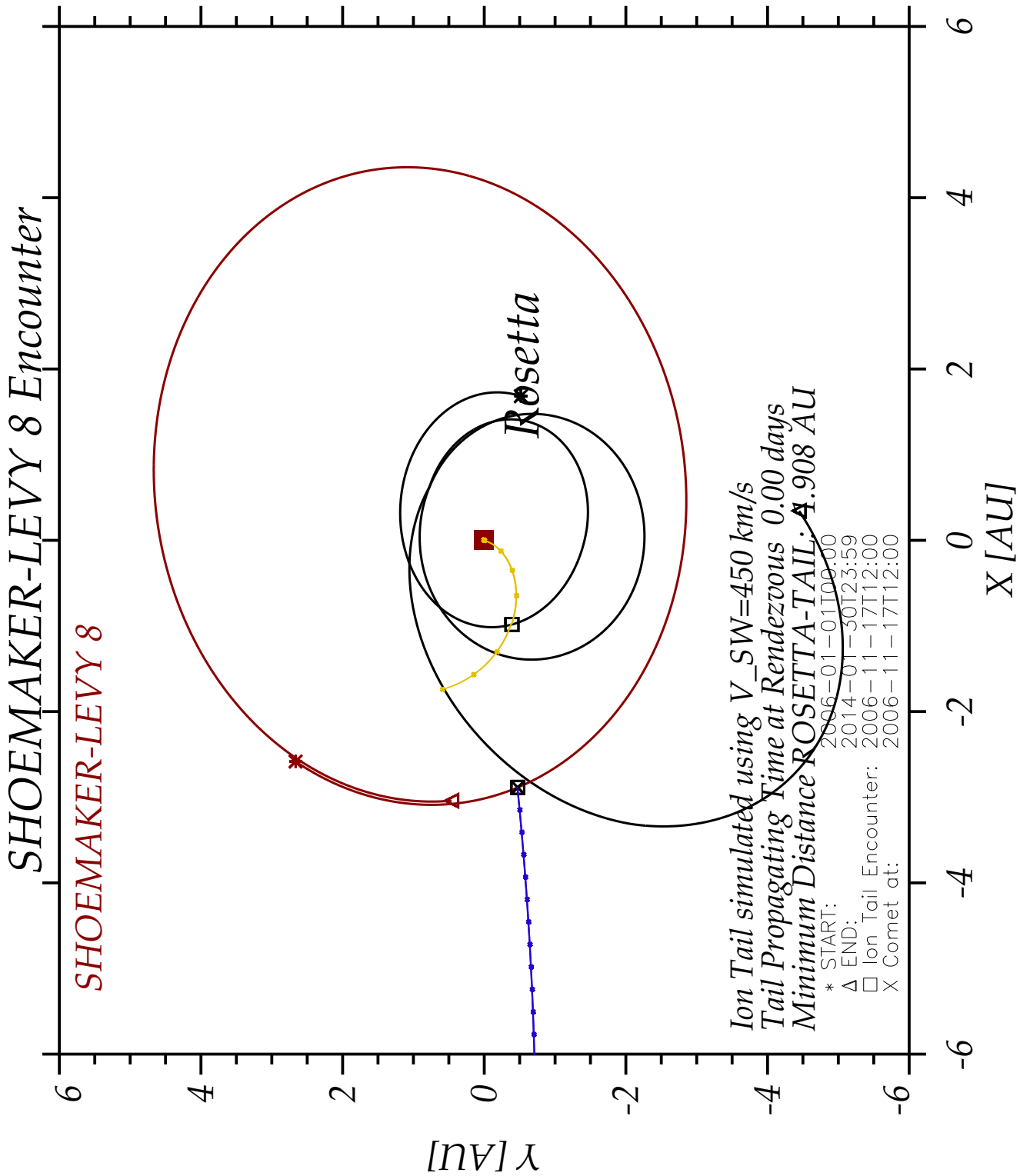


Figure 278: Overview: ROSETTA - SHOEMAKER-LEVY 8

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## 142 Comet 136P/MUELLER 3

<b>Comet: 136P/MUELLER 3</b>
<b>No Encounter below 0.2000AU</b>

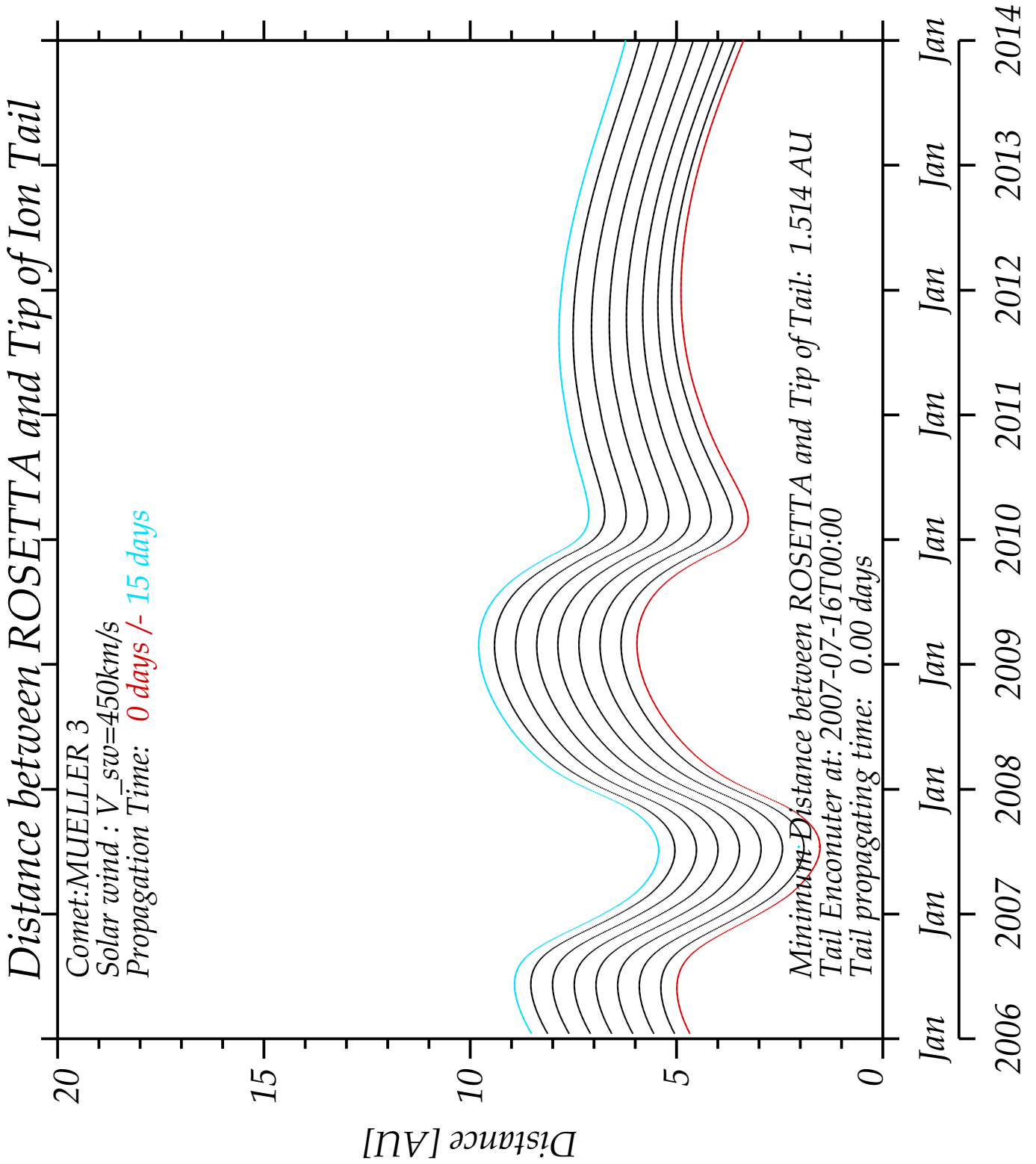


Figure 279: Minimum Distances: ROSETTA - MUELLER 3

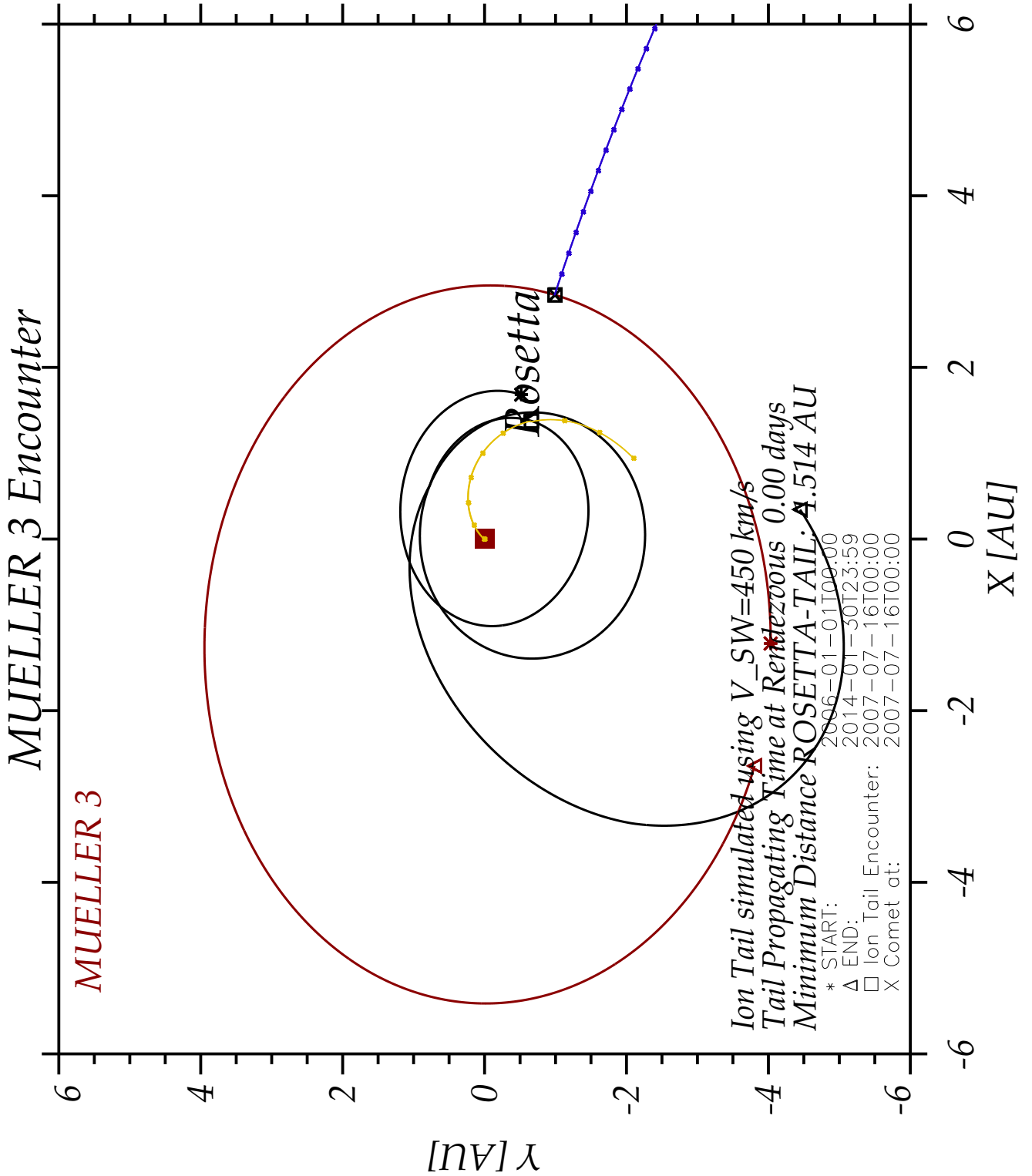


Figure 280: Overview: ROSETTA - MUELLER 3

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## 143 Comet 137P/SHOEMAKER-LEVY 2

<b>Comet: 137P/SHOEMAKER-LEVY 2</b>
<b>No Encounter below 0.2000AU</b>

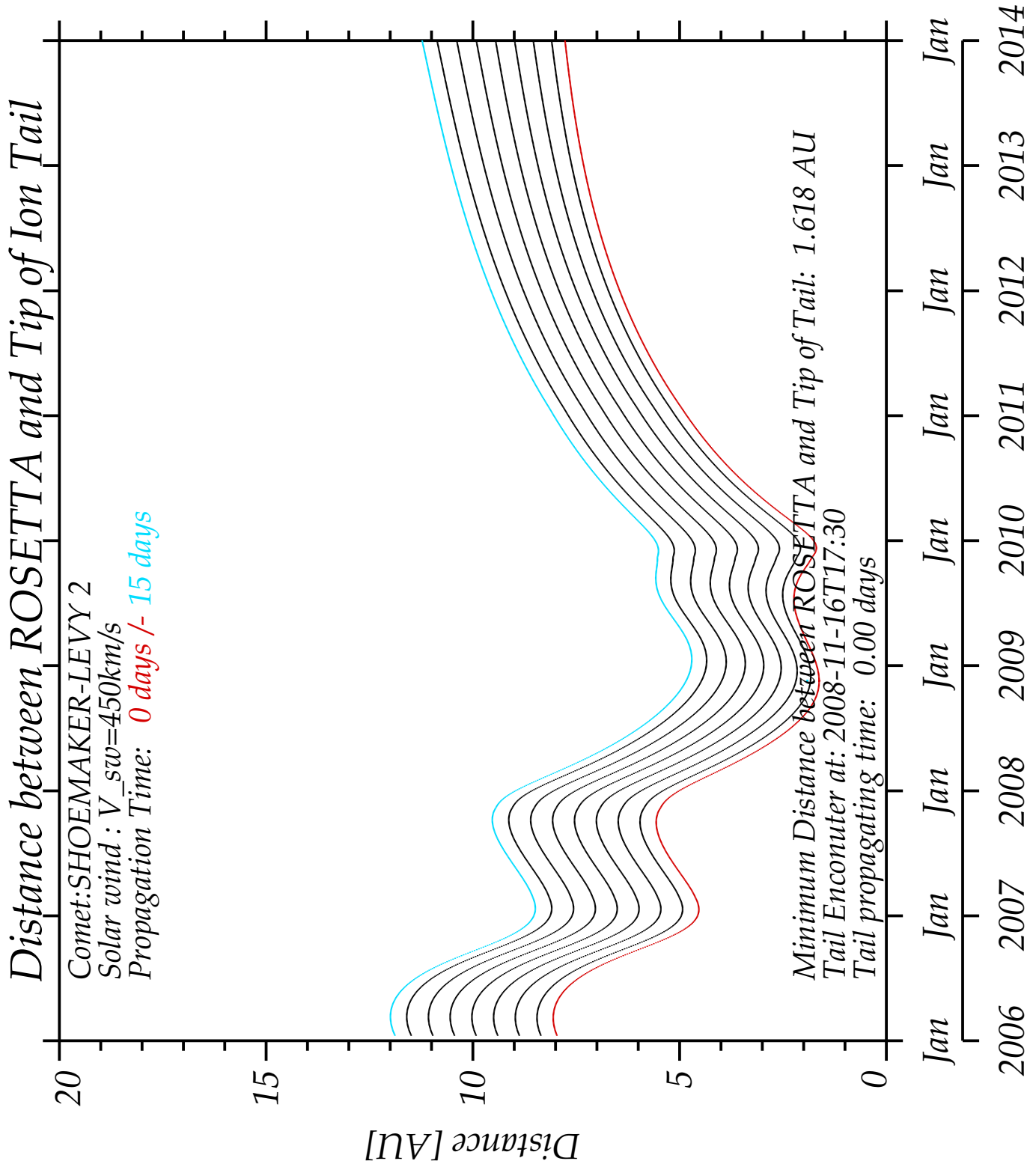


Figure 281: Minimum Distances: ROSETTA - SHOEMAKER-LEVY 2



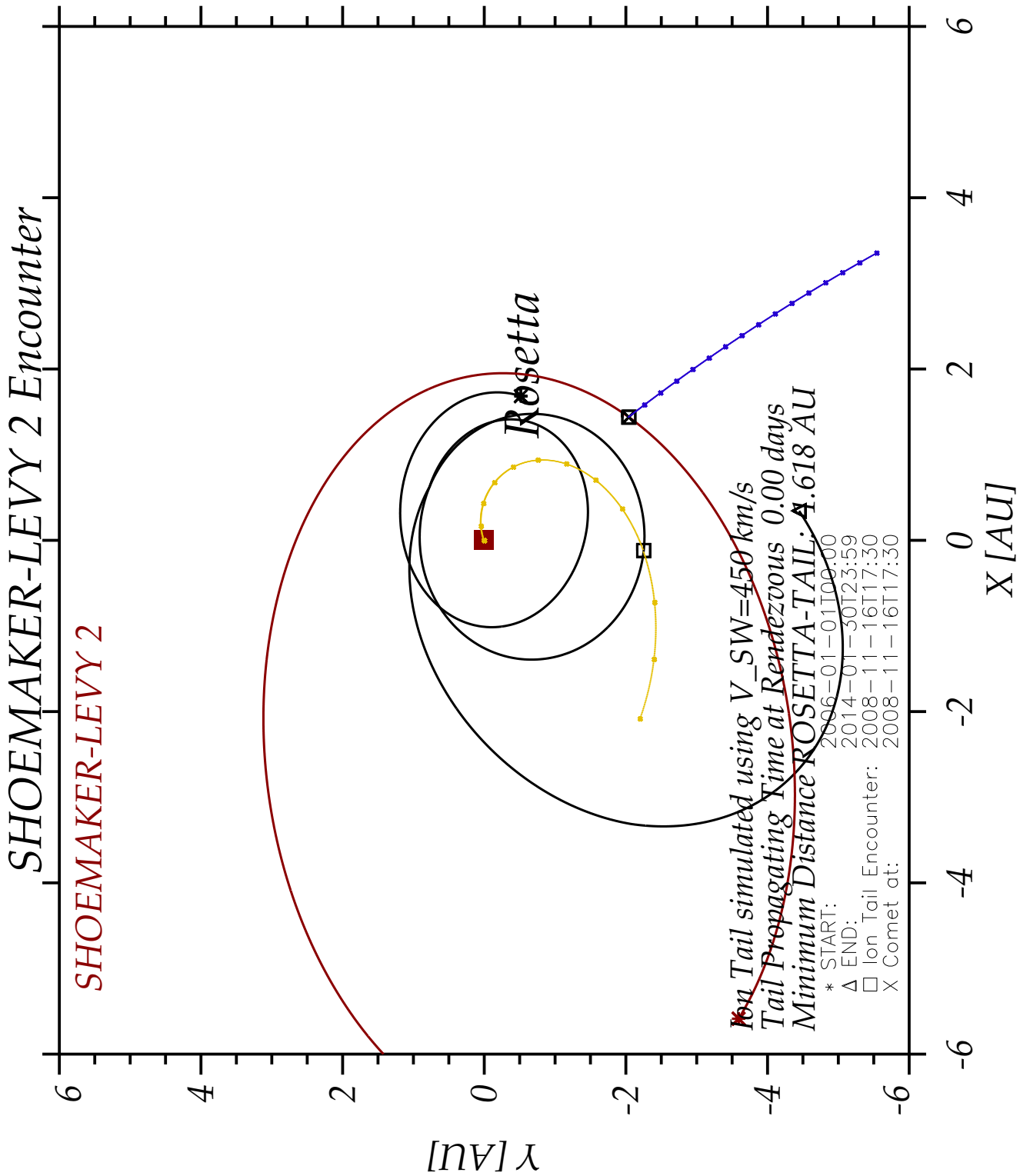


Figure 282: Overview: ROSETTA - SHOEMAKER-LEVY 2

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## 144 Comet 138P/SHOEMAKER-LEVY 7

<b>Comet: 138P/SHOEMAKER-LEVY 7</b>
<b>No Encounter below 0.2000AU</b>

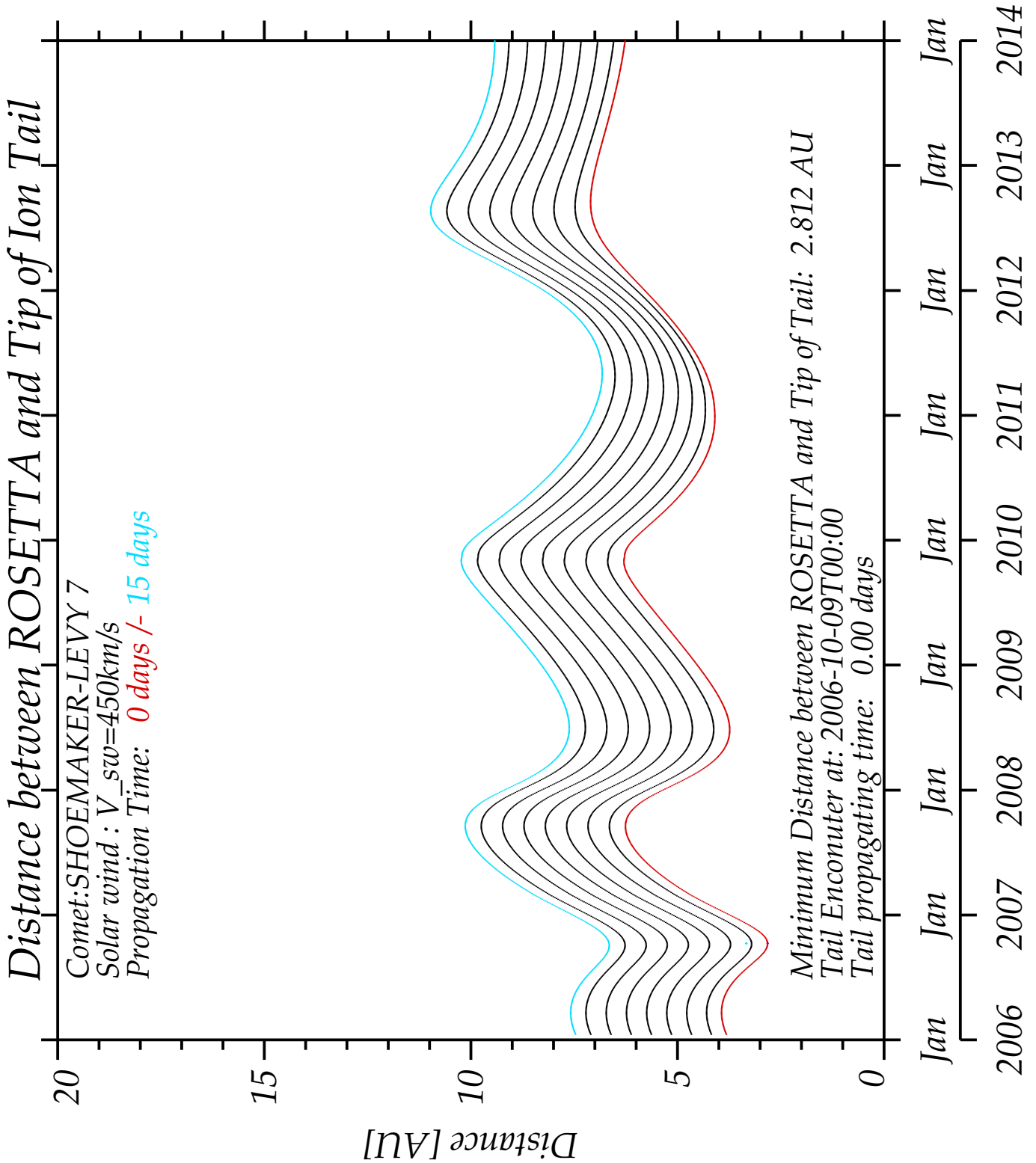


Figure 283: Minimum Distances: ROSETTA - SHOEMAKER-LEVY 7

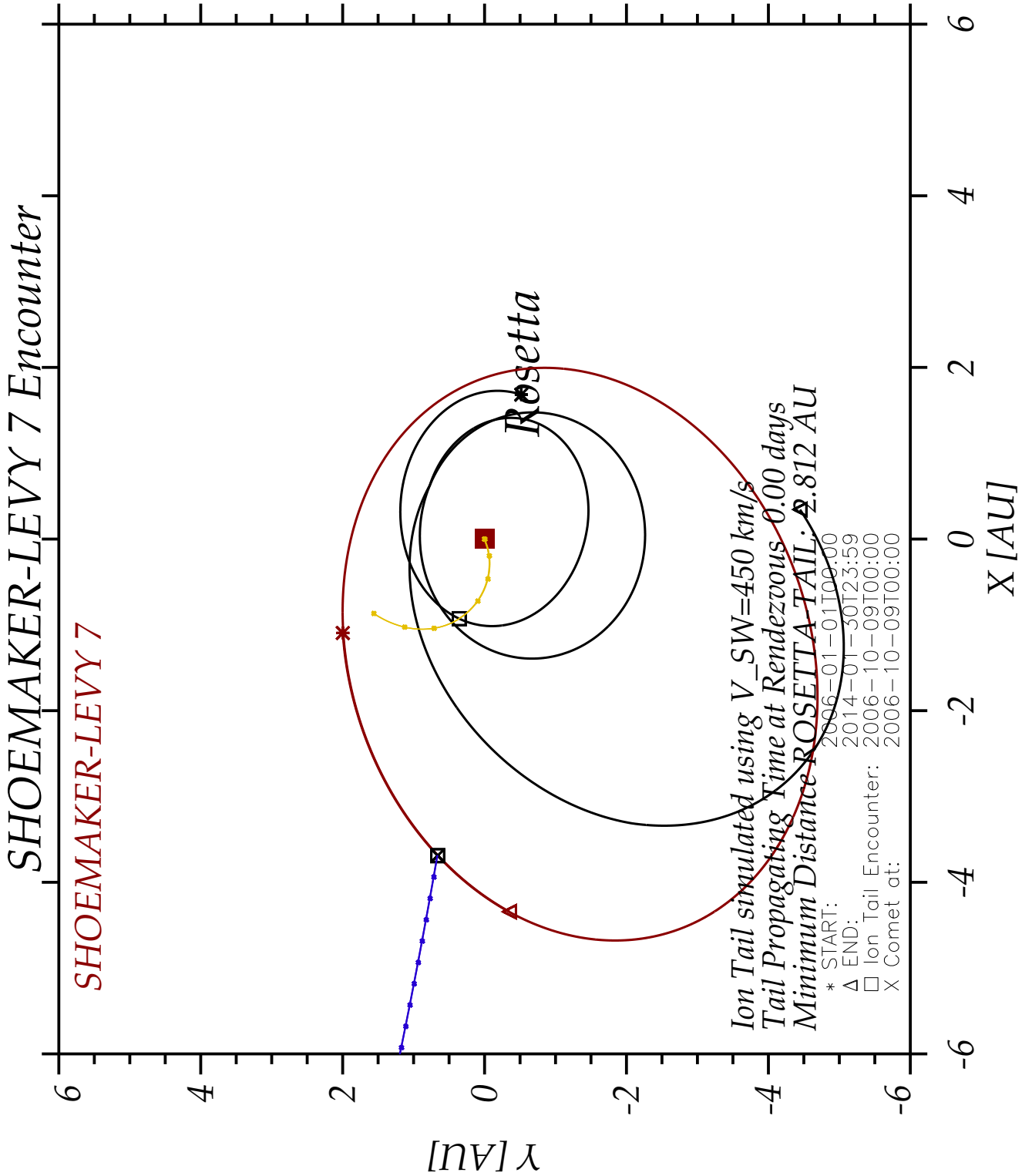


Figure 284: Overview: ROSETTA - SHOEMAKER-LEVY 7

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## 145 Comet 139P/VAISALA-OTERMA

<b>Comet: 139P/VAISALA-OTERMA</b>
<b>No Encounter below 0.2000AU</b>

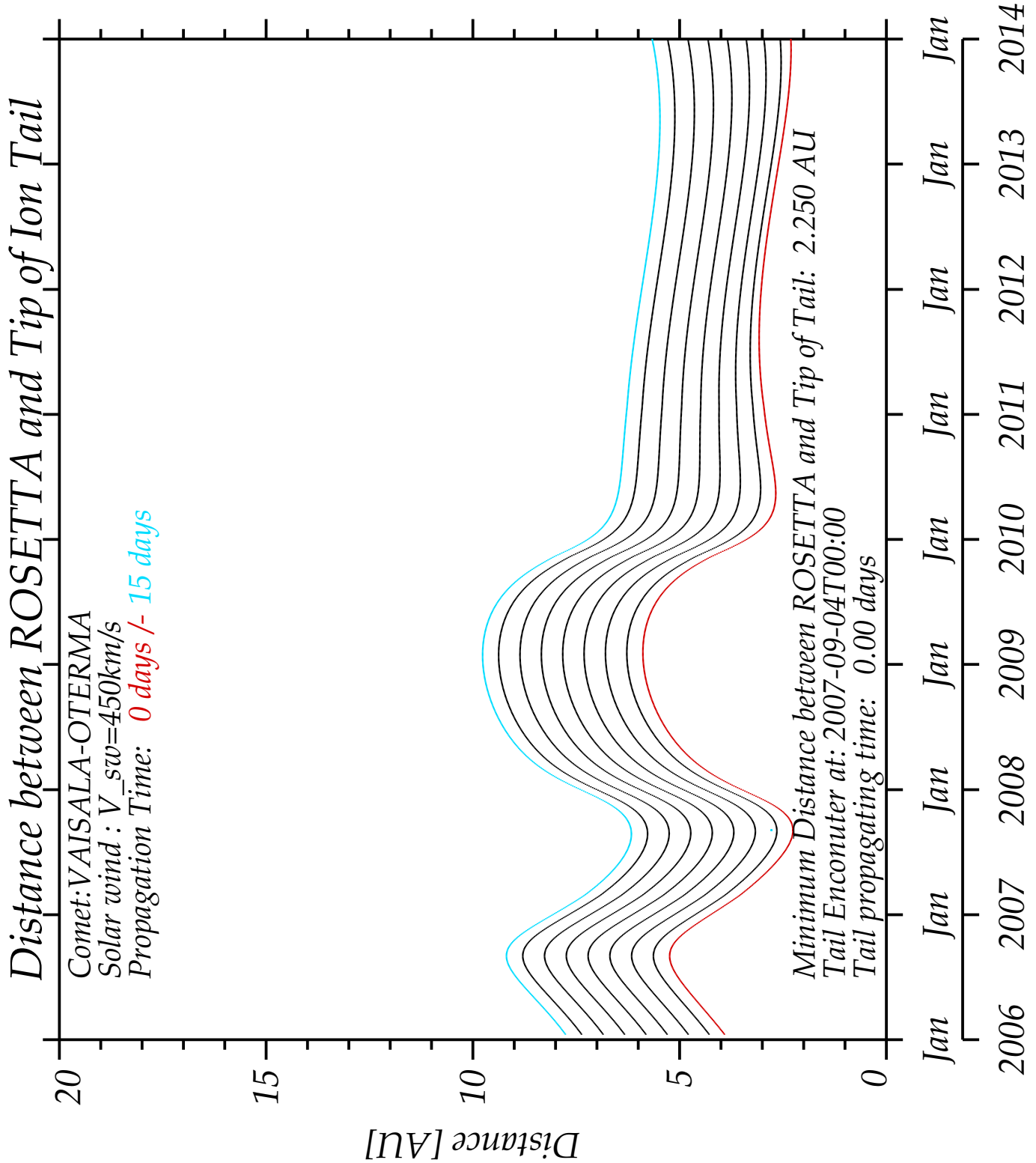


Figure 285: Minimum Distances: ROSETTA - VAISALA-OTERMA

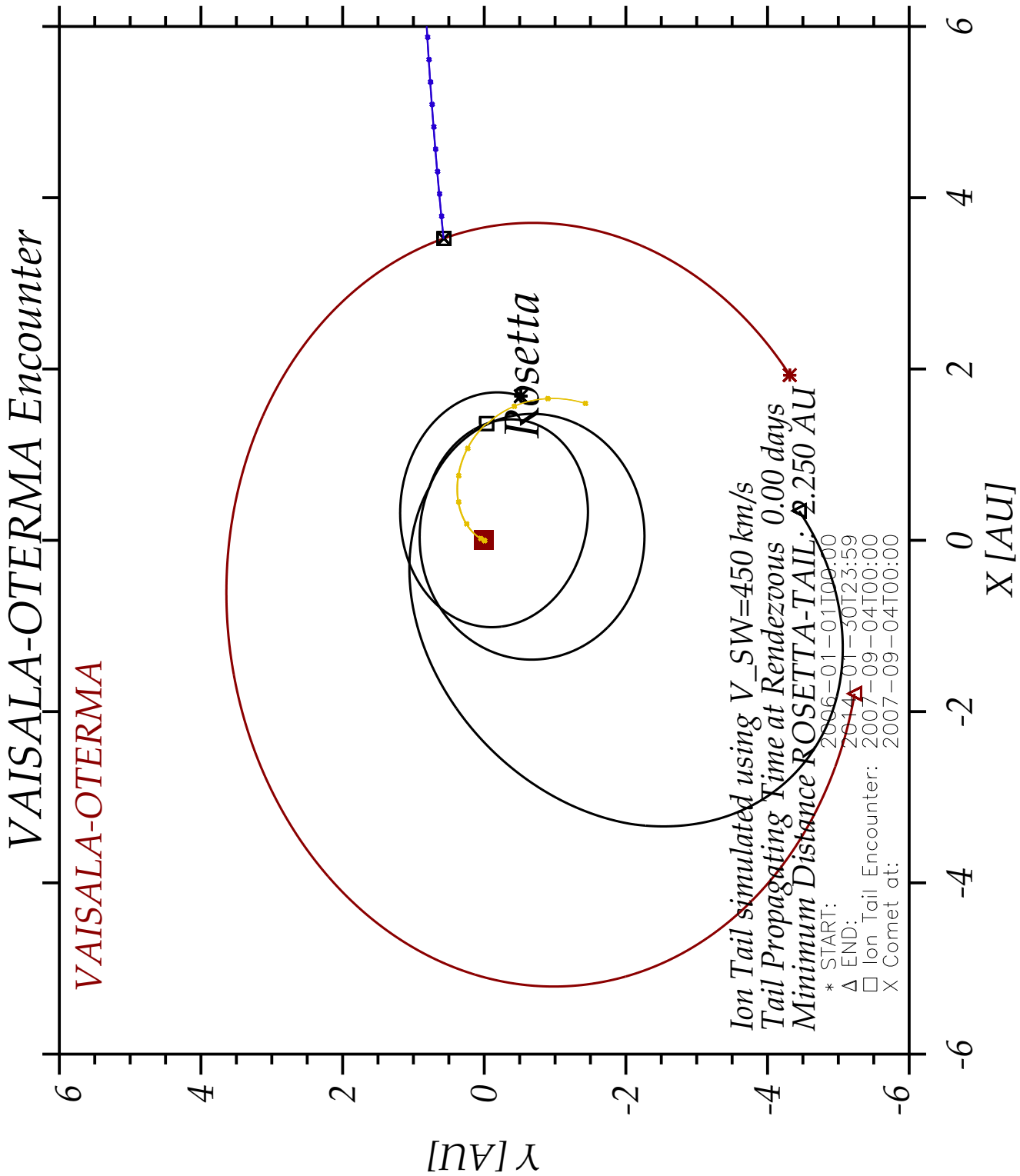


Figure 286: Overview: ROSETTA - VAISALA-OTERMA

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**146 Comet 140P/BOWELL-SKIFF**

<b>Comet: 140P/BOWELL-SKIFF</b>
<b>No Encounter below 0.2000AU</b>



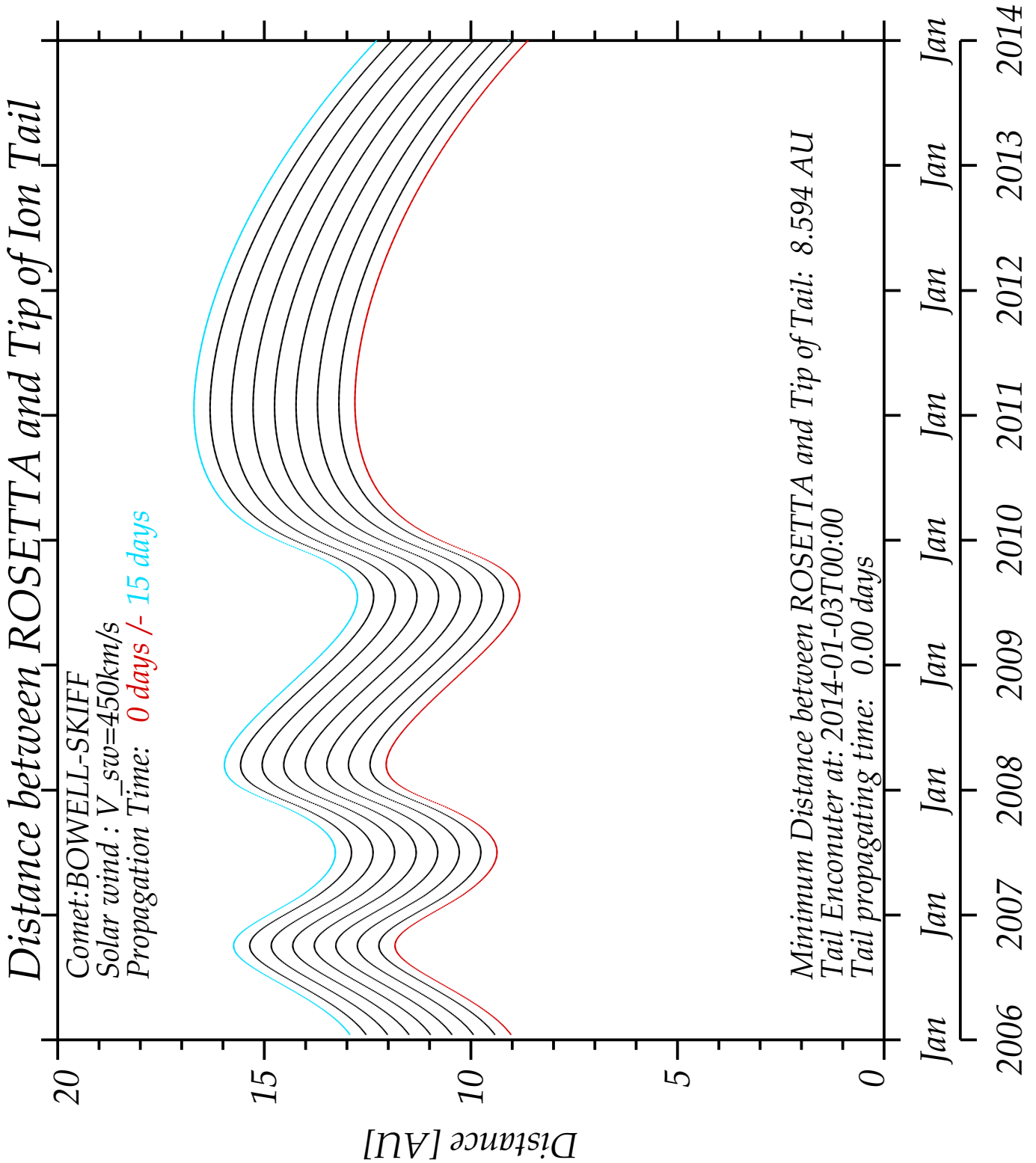


Figure 287: Minimum Distances: ROSETTA - BOWELL-SKIFF

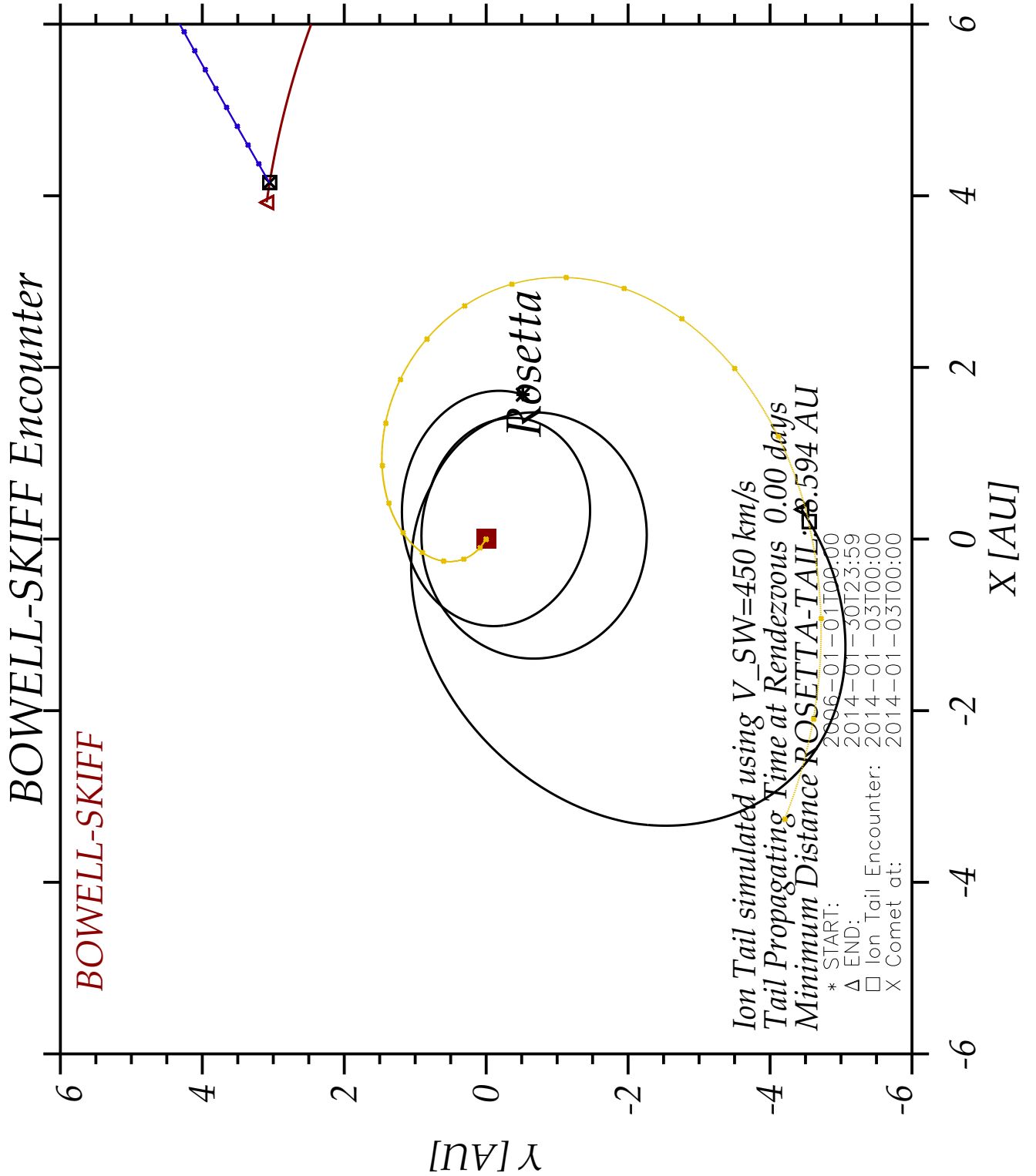


Figure 288: Overview: ROSETTA - BOWELL-SKIFF

<p style="text-align: center;">R O S E T T A</p>	<p>Document: RO-IGEP-TR-0020  Issue: 1  Revision: 2  Date: 2006-10-25  Page: 434</p>
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## 147 Comet 141PA/MACHHOLZ 2A

<p><b>Comet: 141PA/MACHHOLZ 2A</b></p>
<p><b>No Encounter below 0.2000AU</b></p>

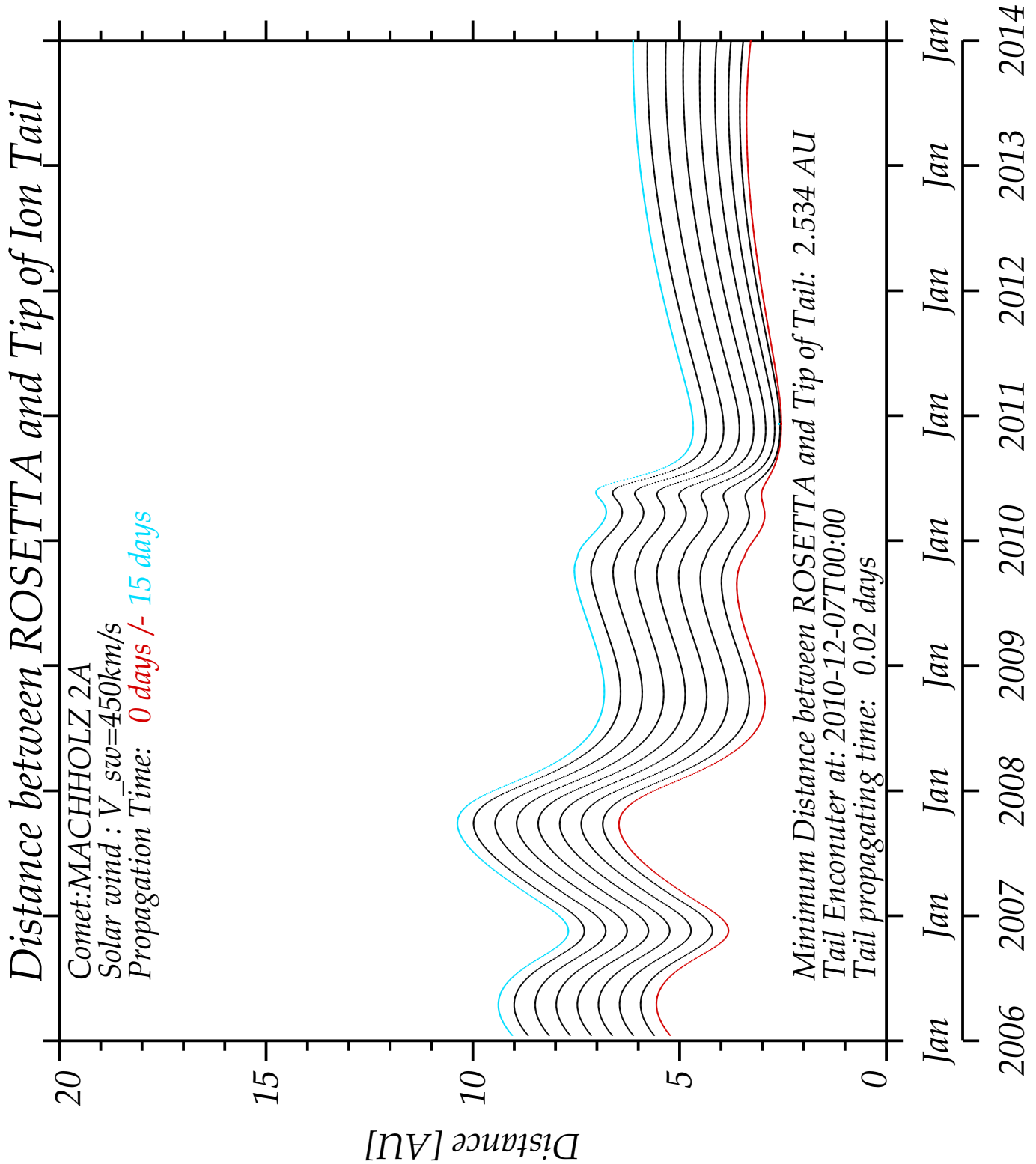


Figure 289: Minimum Distances: ROSETTA - MACHHOLZ 2A

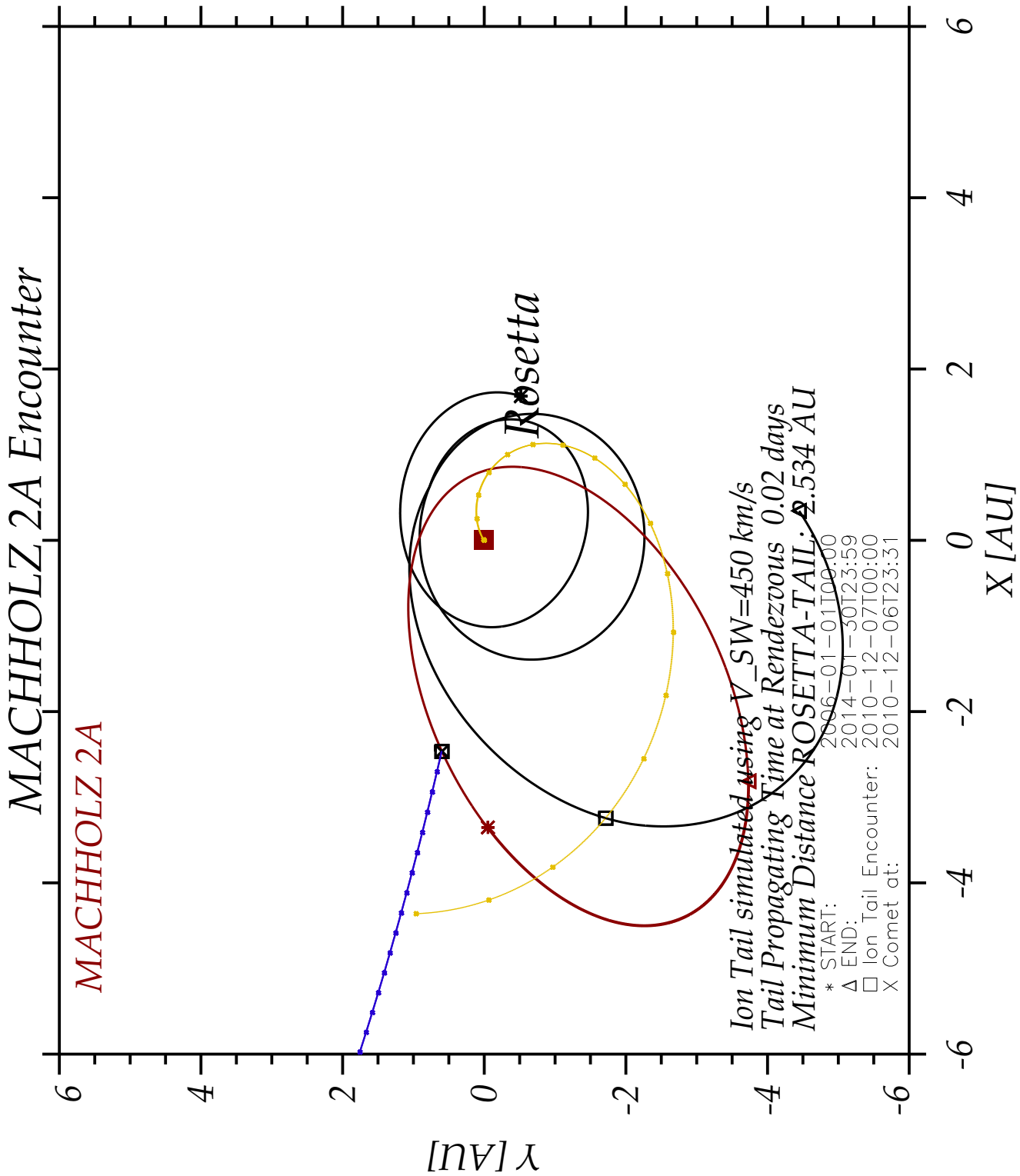


Figure 290: Overview: ROSETTA - MACHHOLZ 2A

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## **148 Comet 141PB/MACHHOLZ 2B**

<b>Comet: 141PB/MACHHOLZ 2B</b>
<b>No Encounter below 0.2000AU</b>

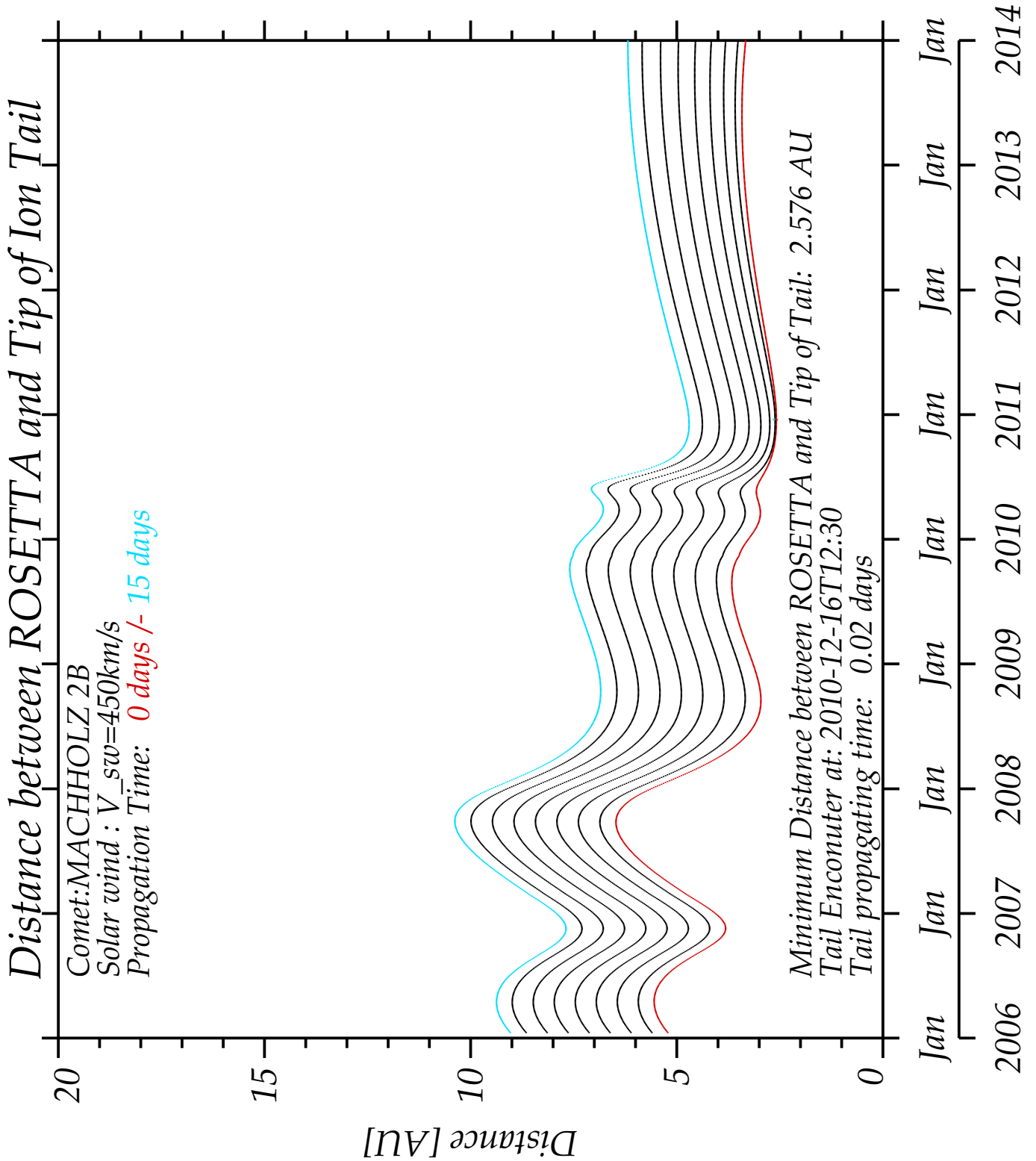


Figure 291: Minimum Distances: ROSETTA - MACHHOLZ 2B

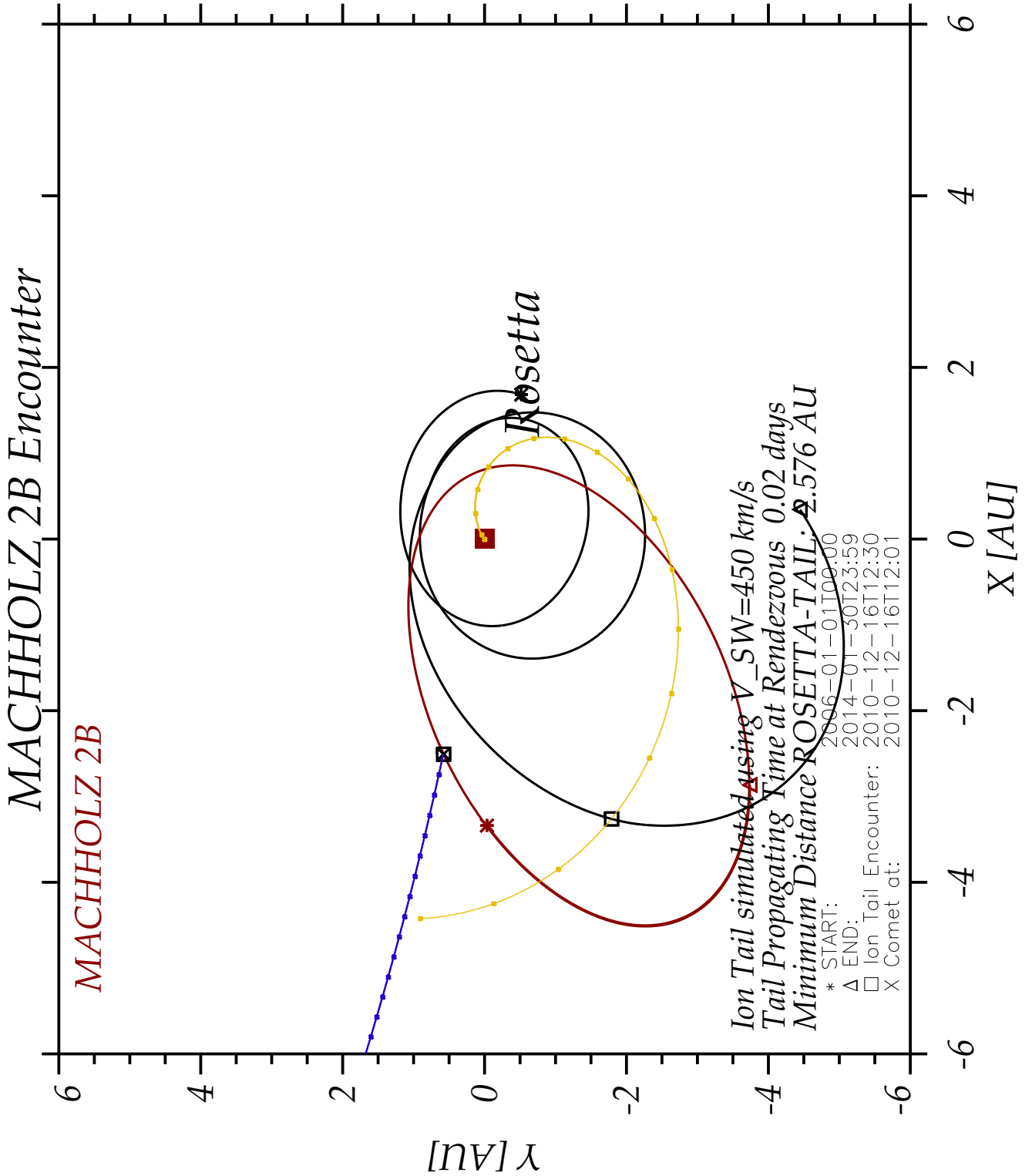


Figure 292: Overview: ROSETTA - MACHHOLZ 2B



<p style="text-align: center;">R O S E T T A</p>	<p>Document: RO-IGEP-TR-0020  Issue: 1  Revision: 2  Date: 2006-10-25  Page: 440</p>
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## 149 Comet 142P/GE-WANG

<p><b>Comet: 142P/GE-WANG</b></p>
<p><b>No Encounter below 0.2000AU</b></p>

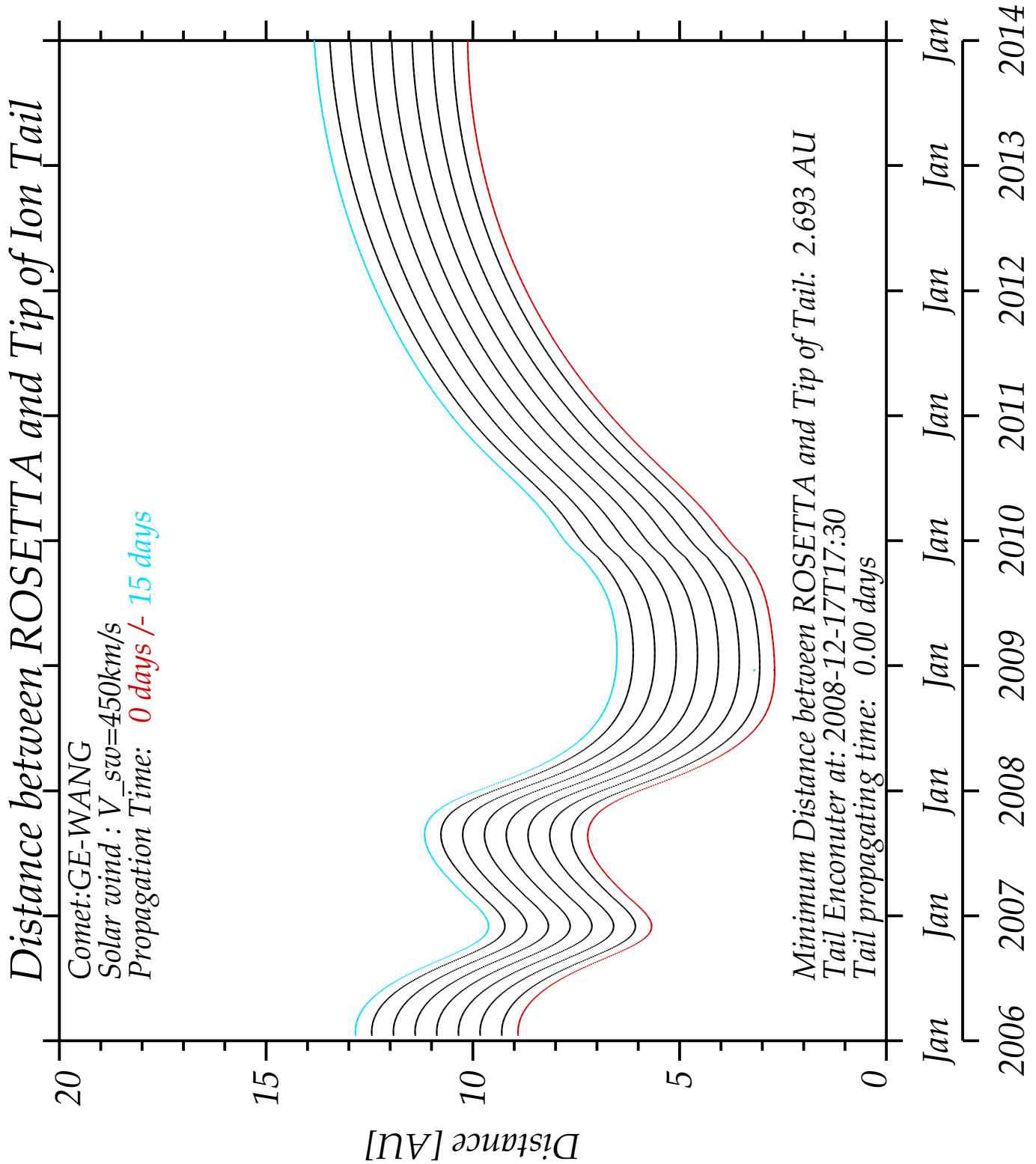


Figure 293: Minimum Distances: ROSETTA - GE-WANG

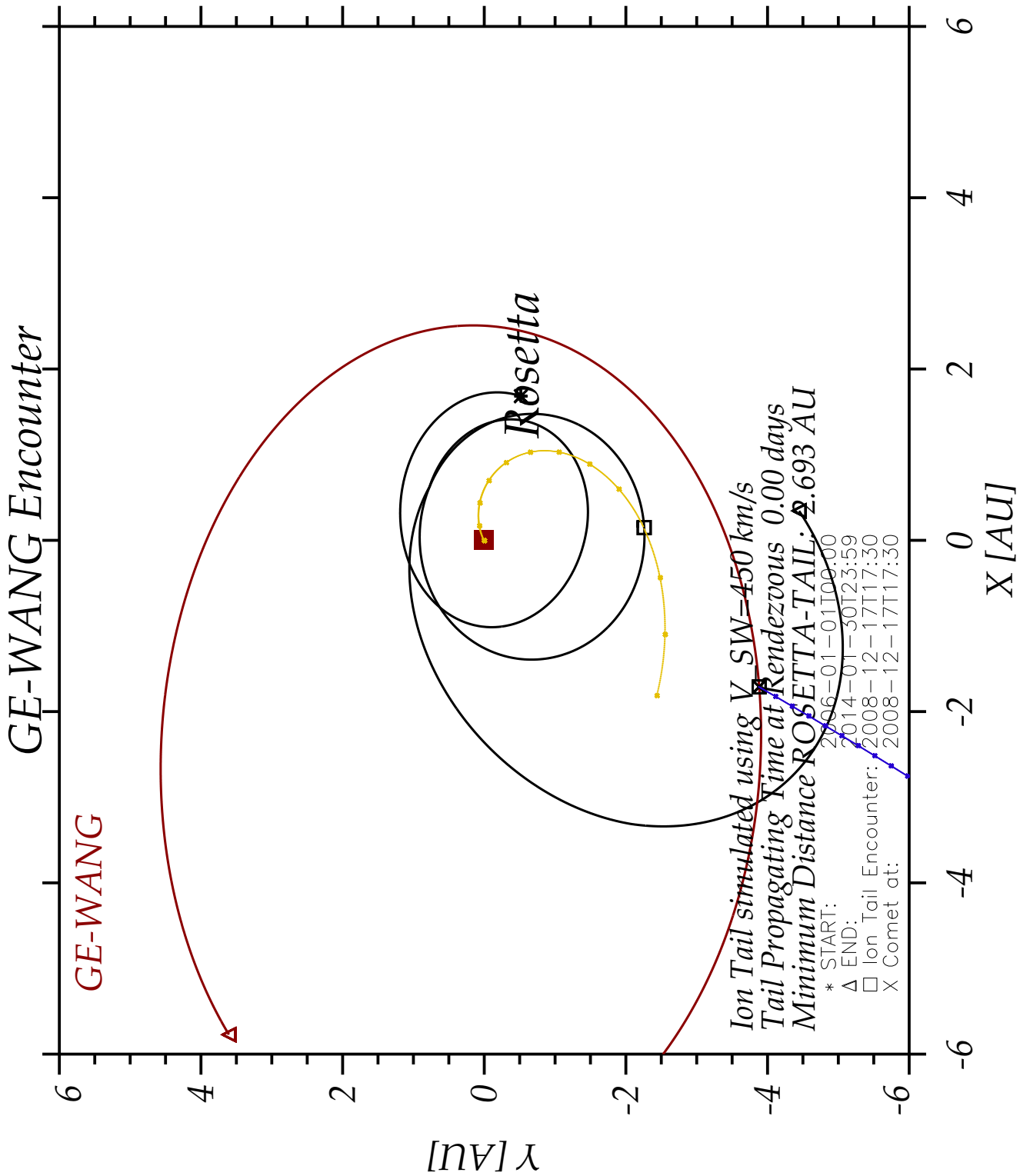


Figure 294: Overview: ROSETTA - GE-WANG

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## 150 Comet 143P/KOWAL-MRKOS

<b>Comet: 143P/KOWAL-MRKOS</b>
<b>No Encounter below 0.2000AU</b>

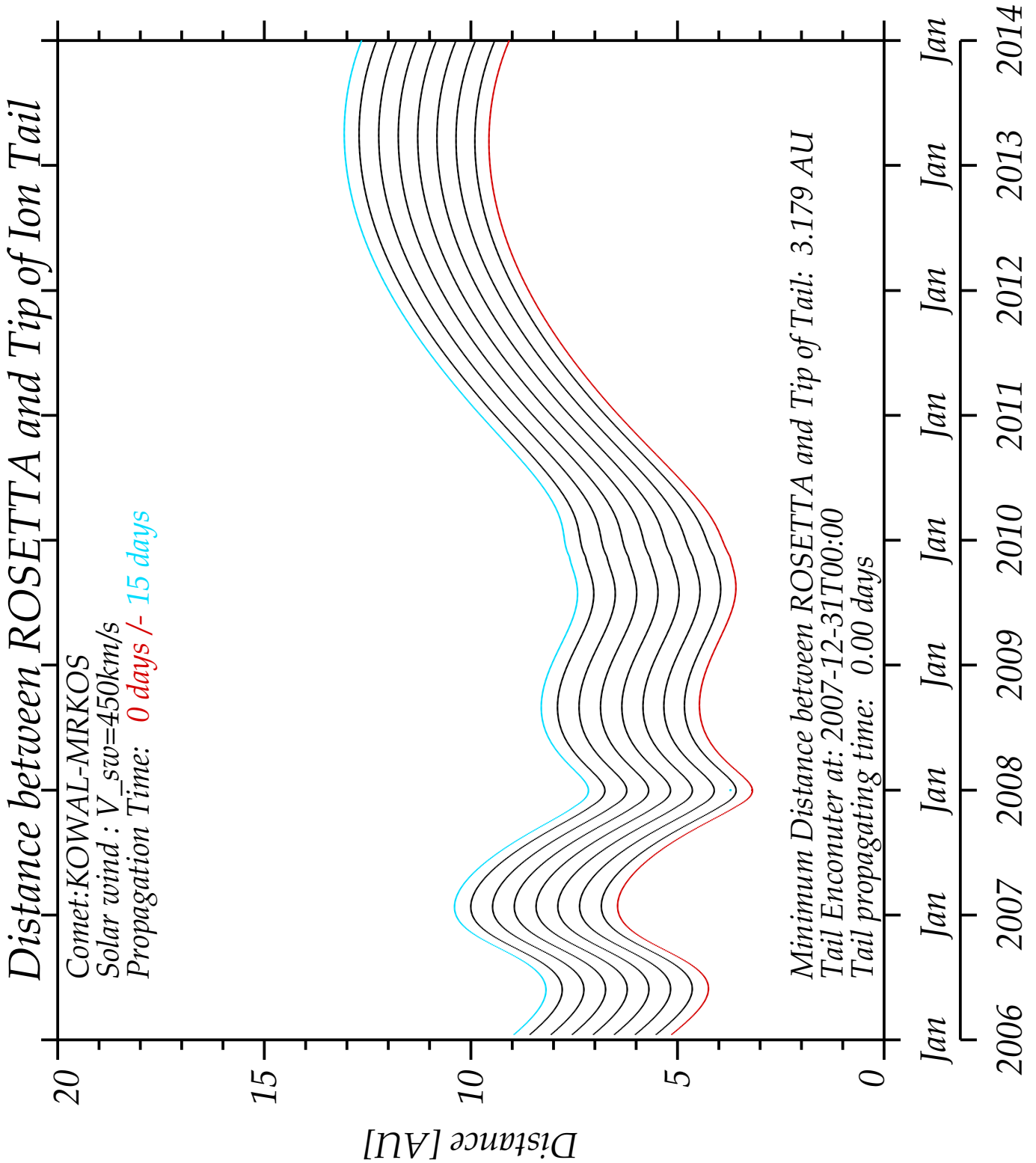


Figure 295: Minimum Distances: ROSETTA - KOWAL-MRKOS

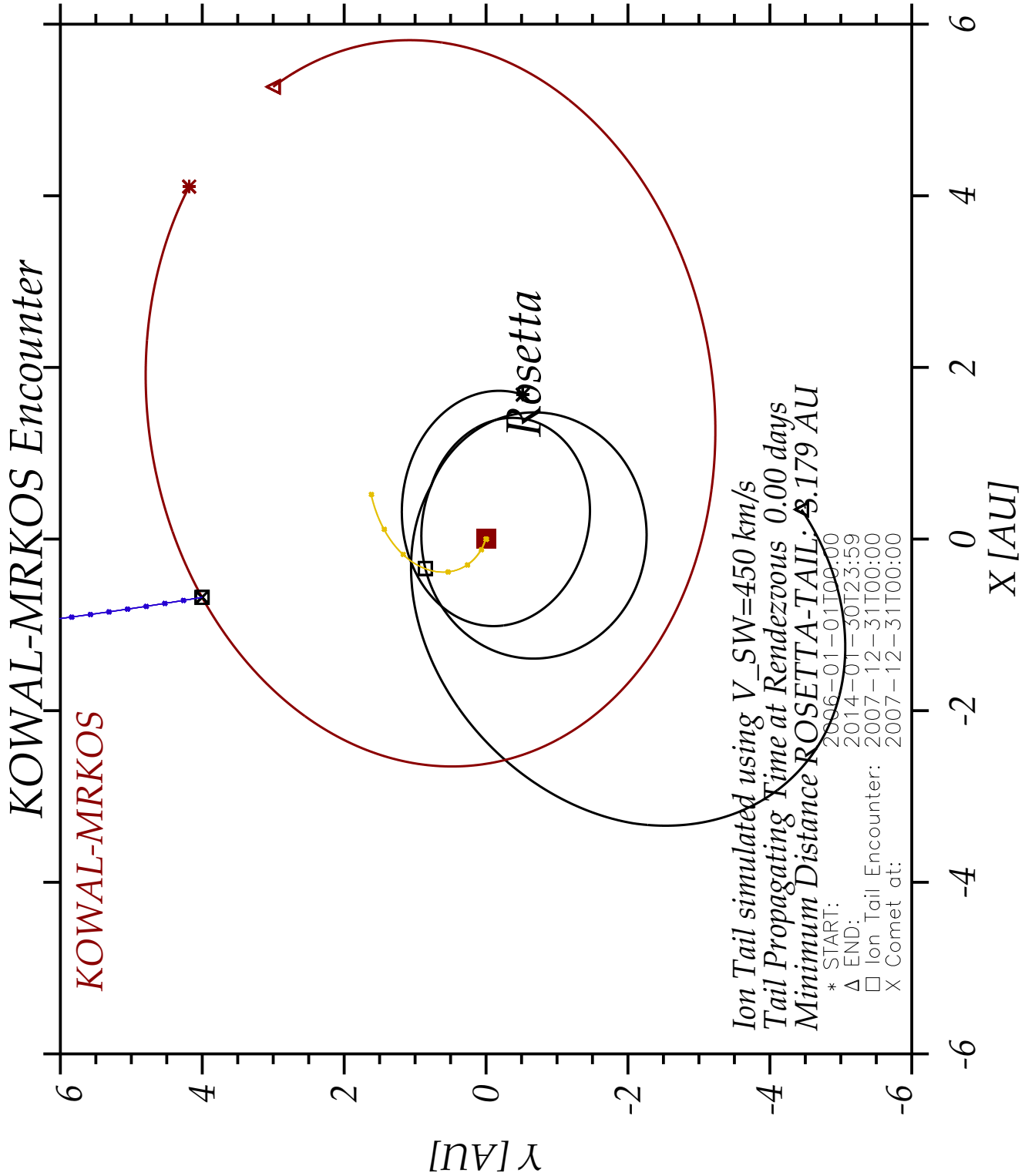


Figure 296: Overview: ROSETTA - KOWAL-MRKOS

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## 151 Comet 144P/KUSHIDA

<b>Comet: 144P/KUSHIDA</b>
<b>No Encounter below 0.2000AU</b>

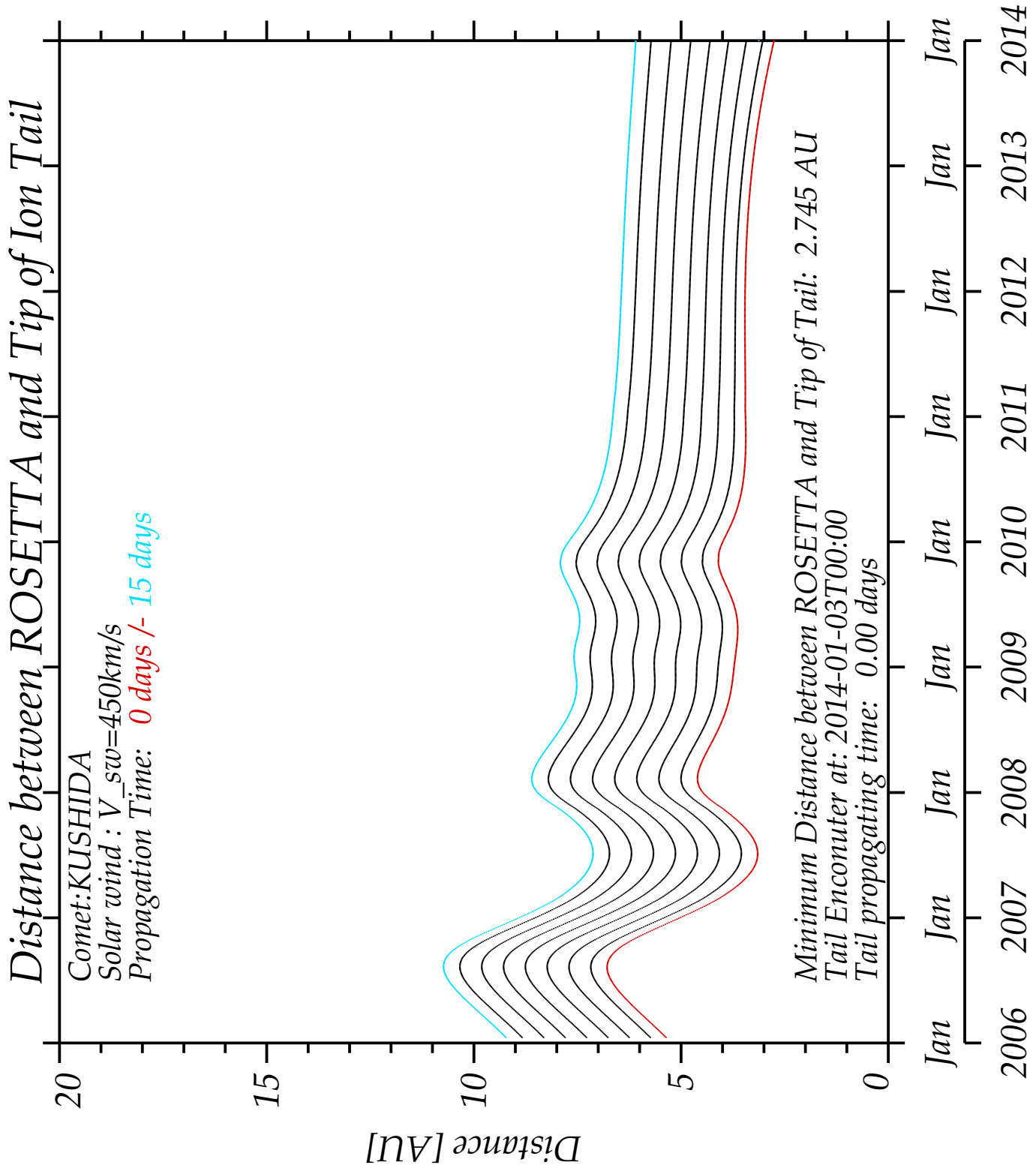


Figure 297: Minimum Distances: ROSETTA - KUSHIDA



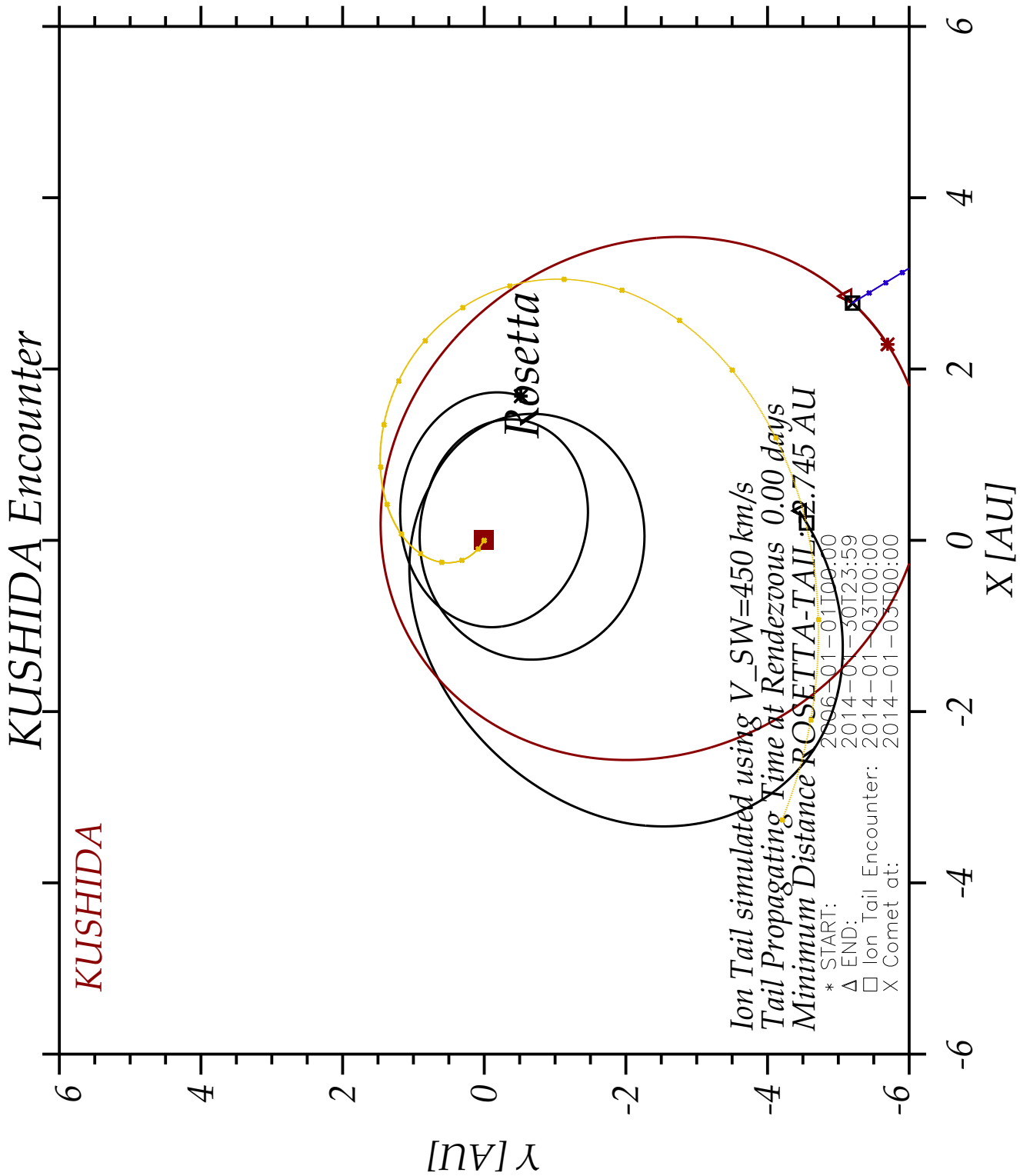


Figure 298: Overview: ROSETTA - KUSHIDA

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## **152 Comet 145P/SHOEMAKER-LEVY 5**

<b>Comet: 145P/SHOEMAKER-LEVY 5</b>
<b>No Encounter below 0.2000AU</b>

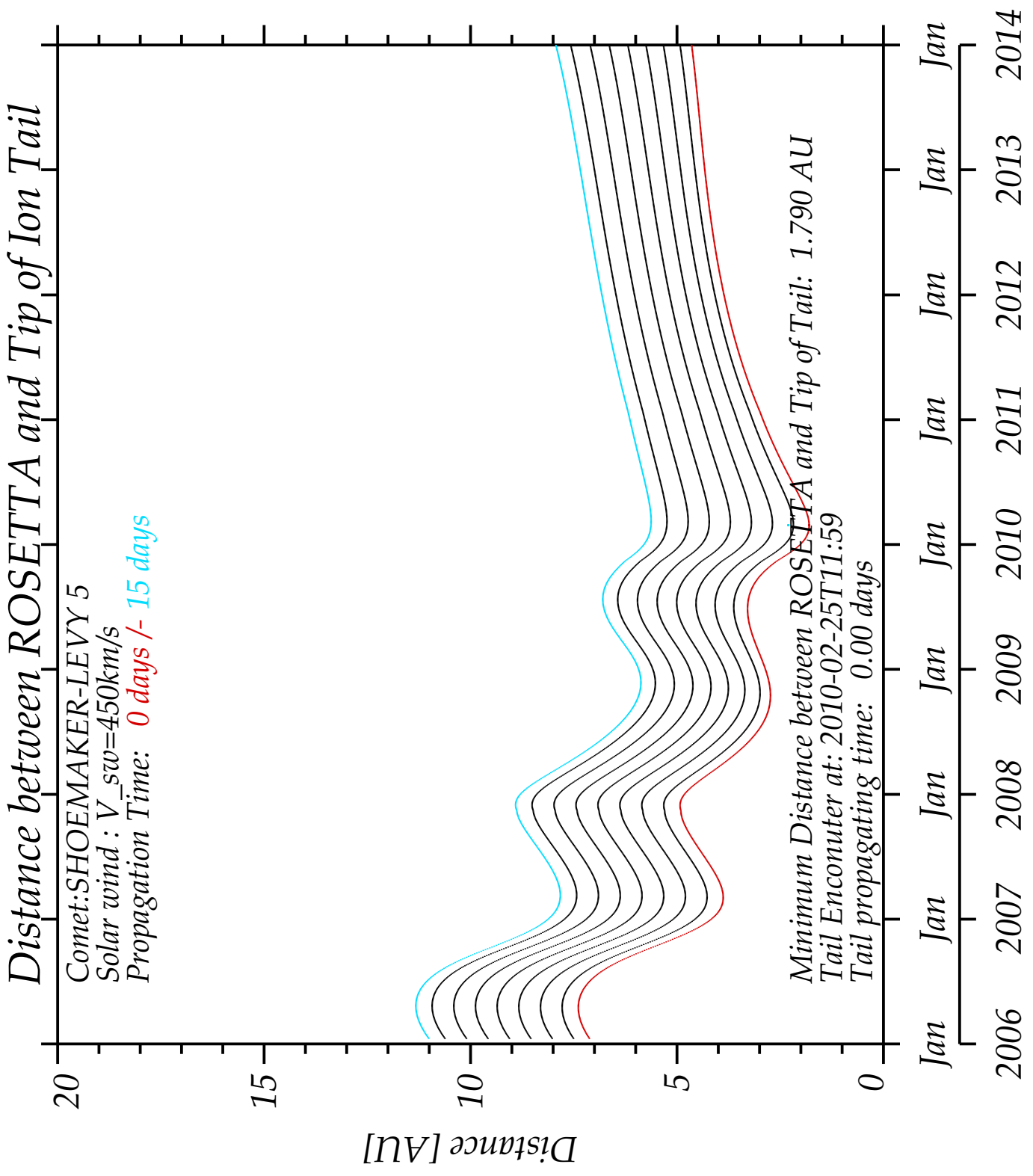


Figure 299: Minimum Distances: ROSETTA - SHOEMAKER-LEVY 5

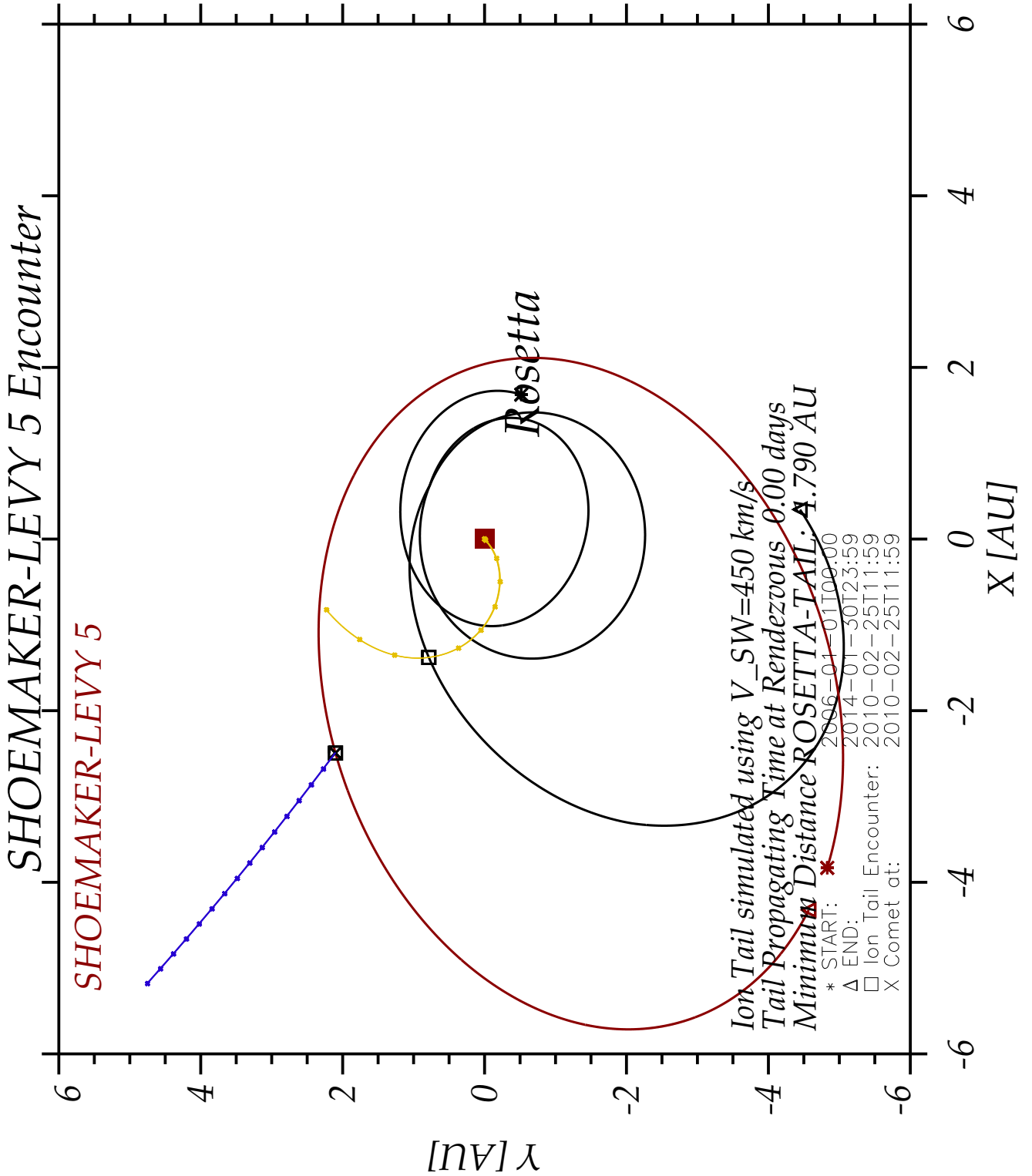


Figure 300: Overview: ROSETTA - SHOEMAKER-LEVY 5

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## 153 Comet 146P/SHOEMAKER-LINEAR

<b>Comet: 146P/SHOEMAKER-LINEAR</b>
<b>No Encounter below 0.2000AU</b>

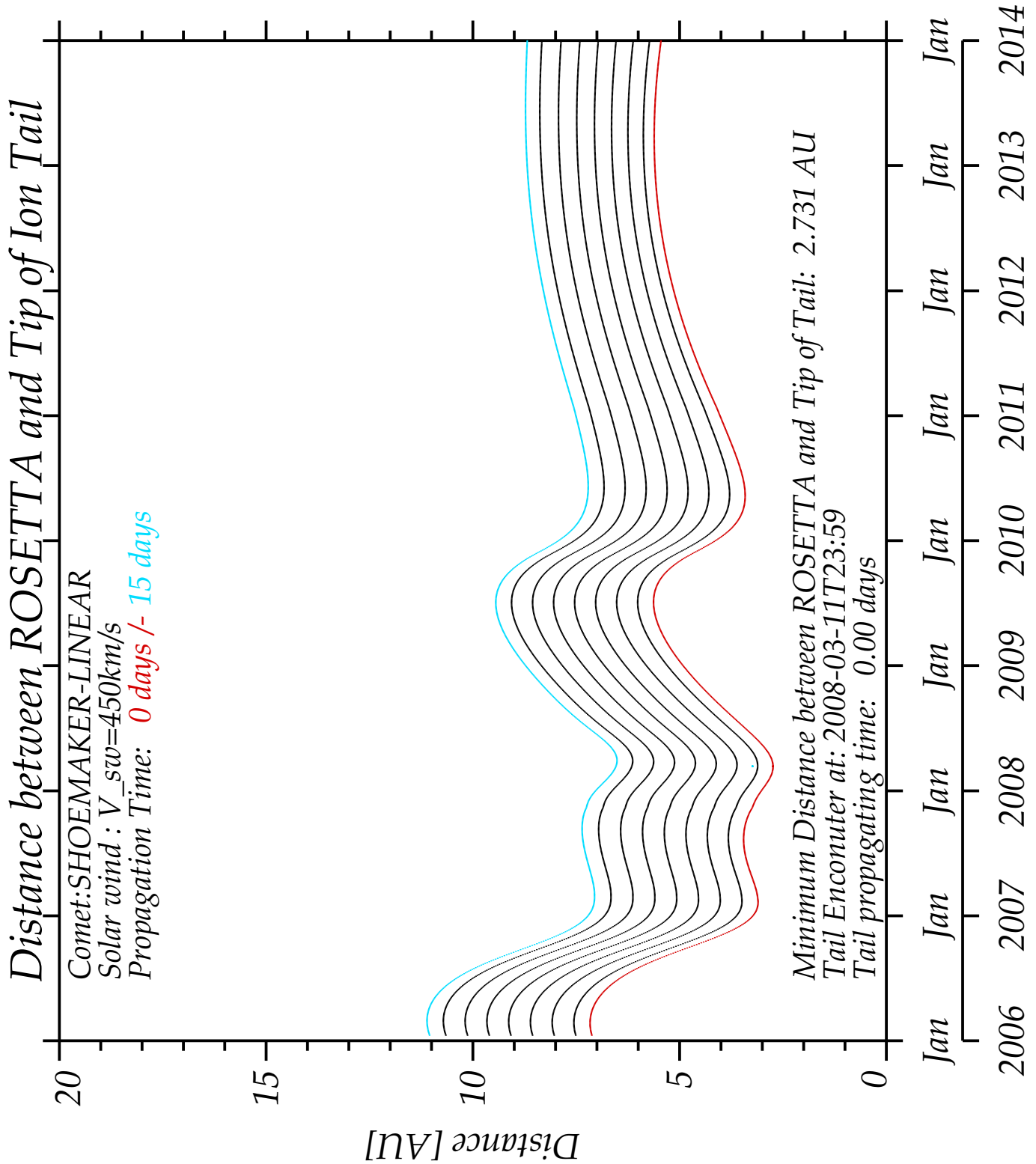


Figure 301: Minimum Distances: ROSETTA - SHOEMAKER-LINEAR

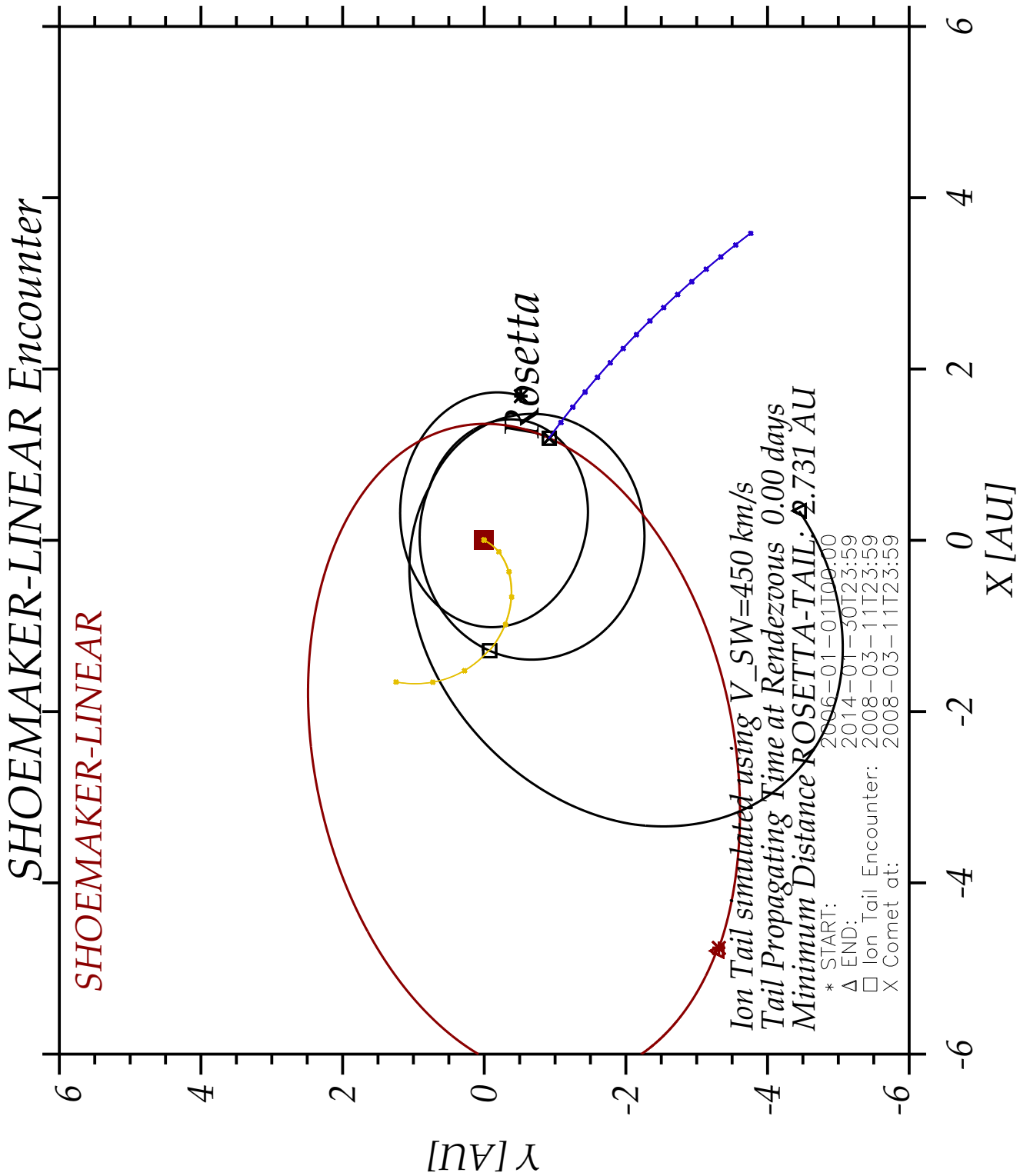


Figure 302: Overview: ROSETTA - SHOEMAKER-LINEAR

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## 154 Comet 147P/KUSHIDA-MURAMATSU

<b>Comet: 147P/KUSHIDA-MURAMATSU</b>
<b>No Encounter below 0.2000AU</b>



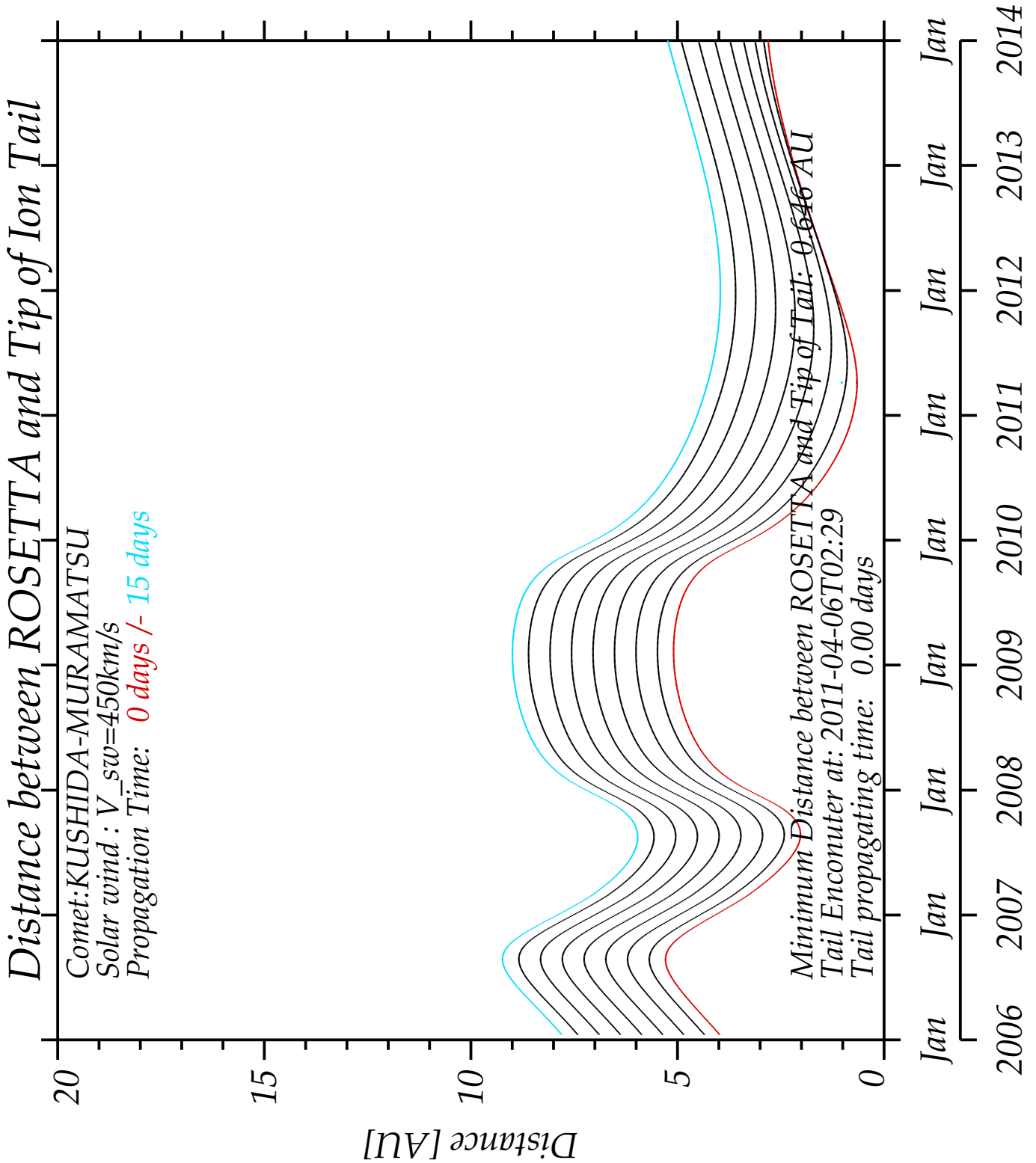


Figure 303: Minimum Distances: ROSETTA - KUSHIDA-MURAMATSU

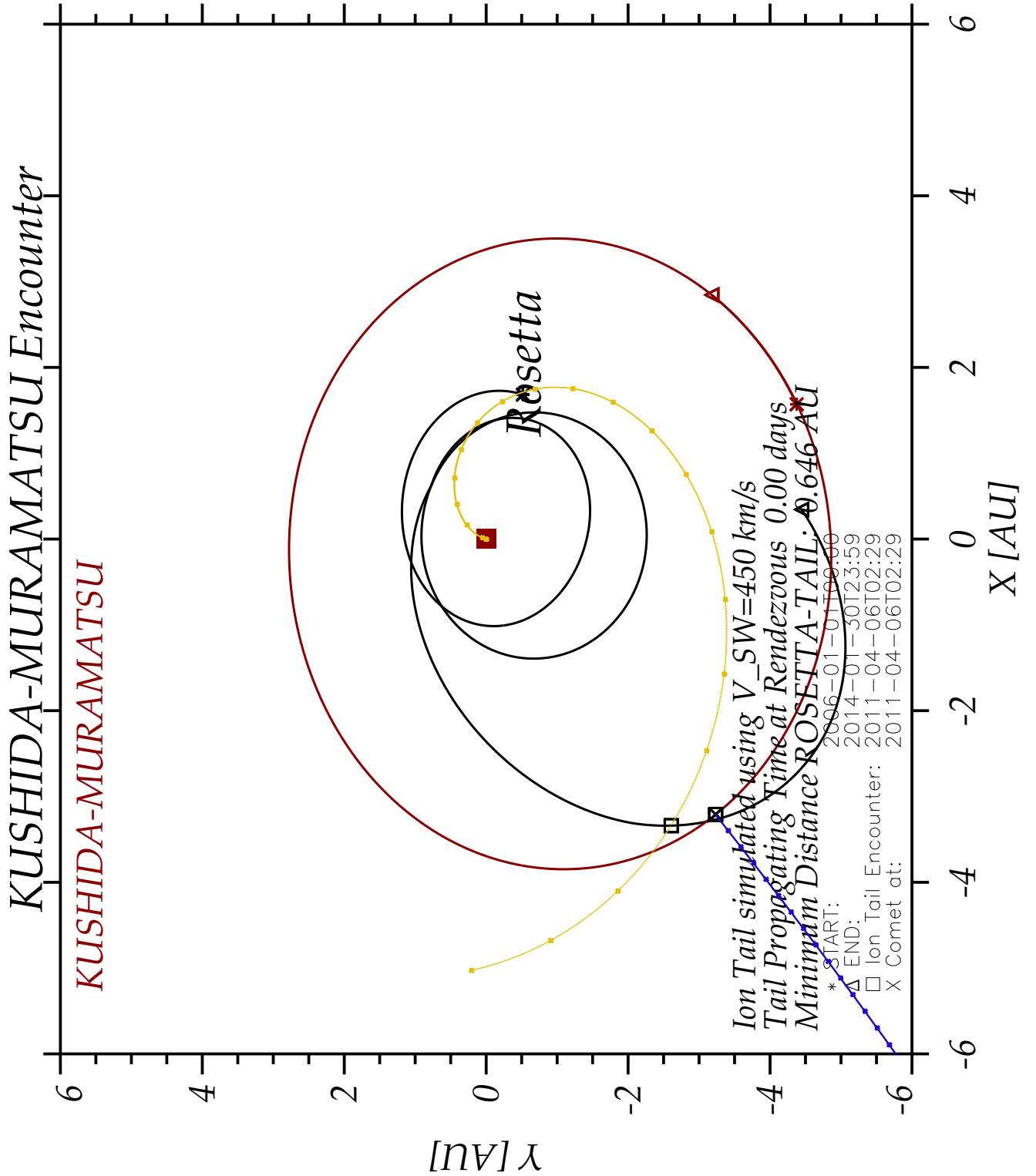


Figure 304: Overview: ROSETTA - KUSHIDA-MURAMATSU

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## 155 Comet 148P/ANDERSON-LINEAR

<b>Comet: 148P/ANDERSON-LINEAR</b>
<b>No Encounter below 0.2000AU</b>

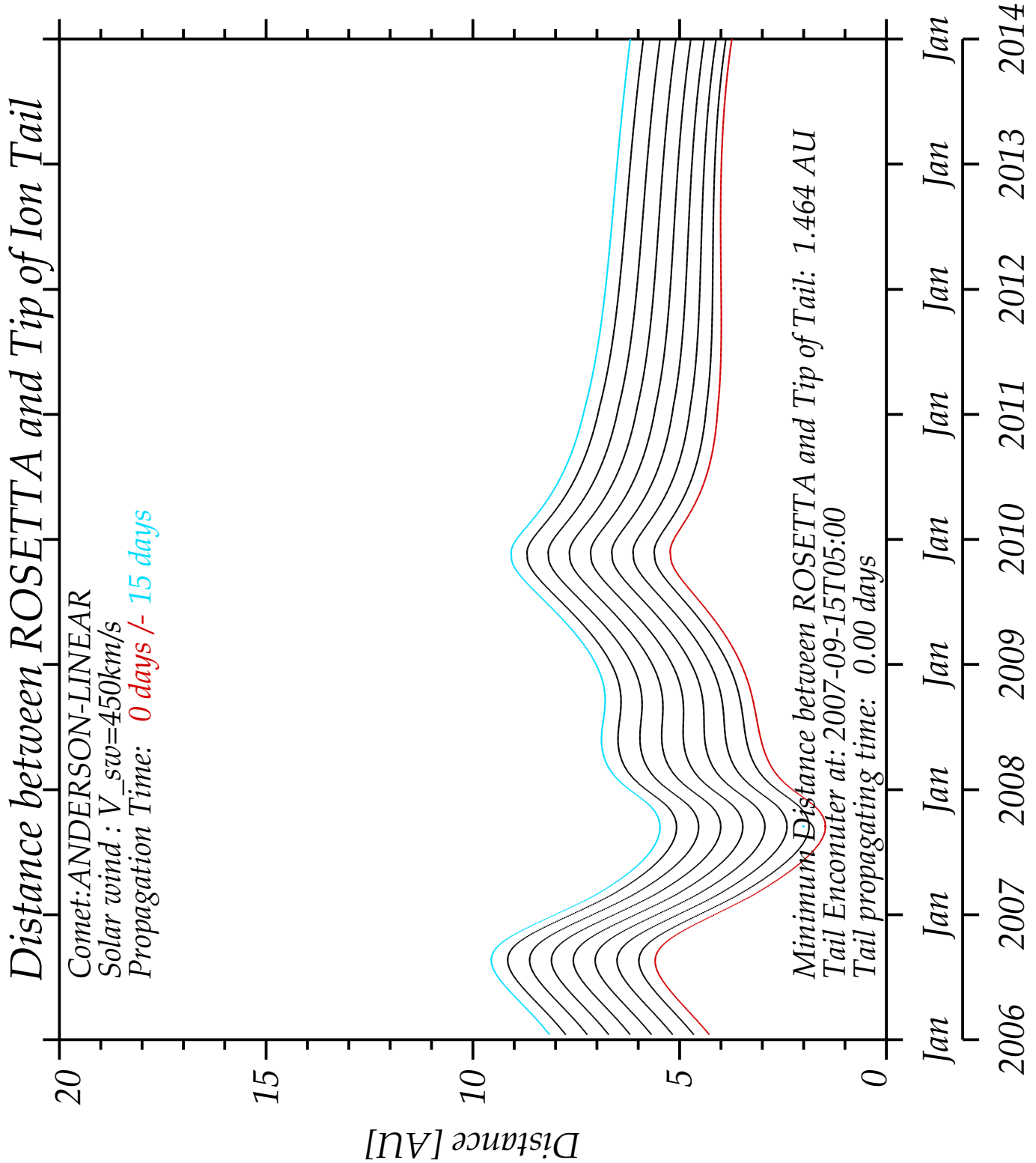


Figure 305: Minimum Distances: ROSETTA - ANDERSON-LINEAR

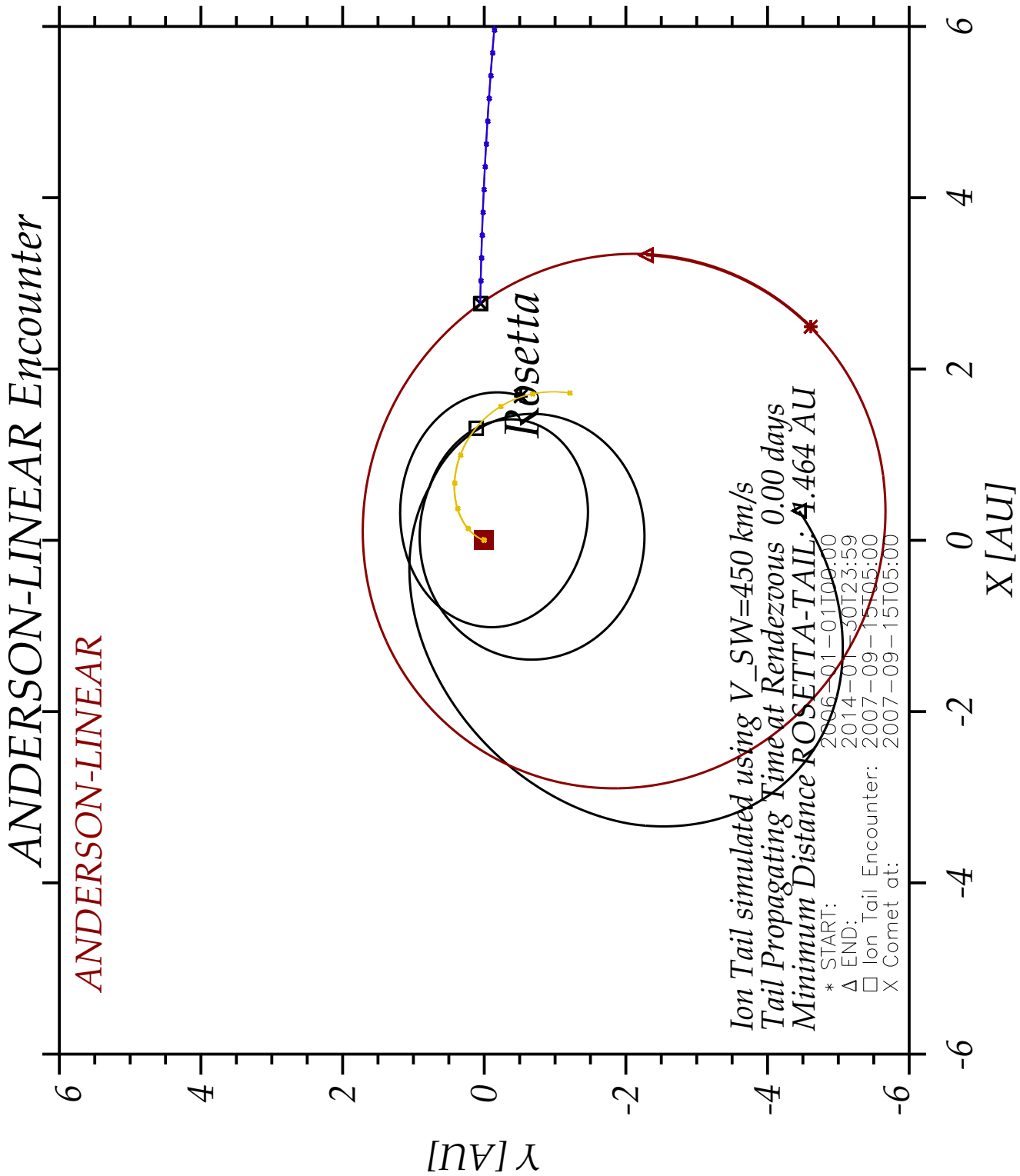


Figure 306: Overview: ROSETTA - ANDERSON-LINEAR

<p style="text-align: center;">R O S E T T A</p>	<p>Document: RO-IGEP-TR-0020  Issue: 1  Revision: 2</p>
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## 156 Comet 149P/MUELLER 4

<p><b>Comet: 149P/MUELLER 4</b></p>
<p><b>No Encounter below 0.2000AU</b></p>

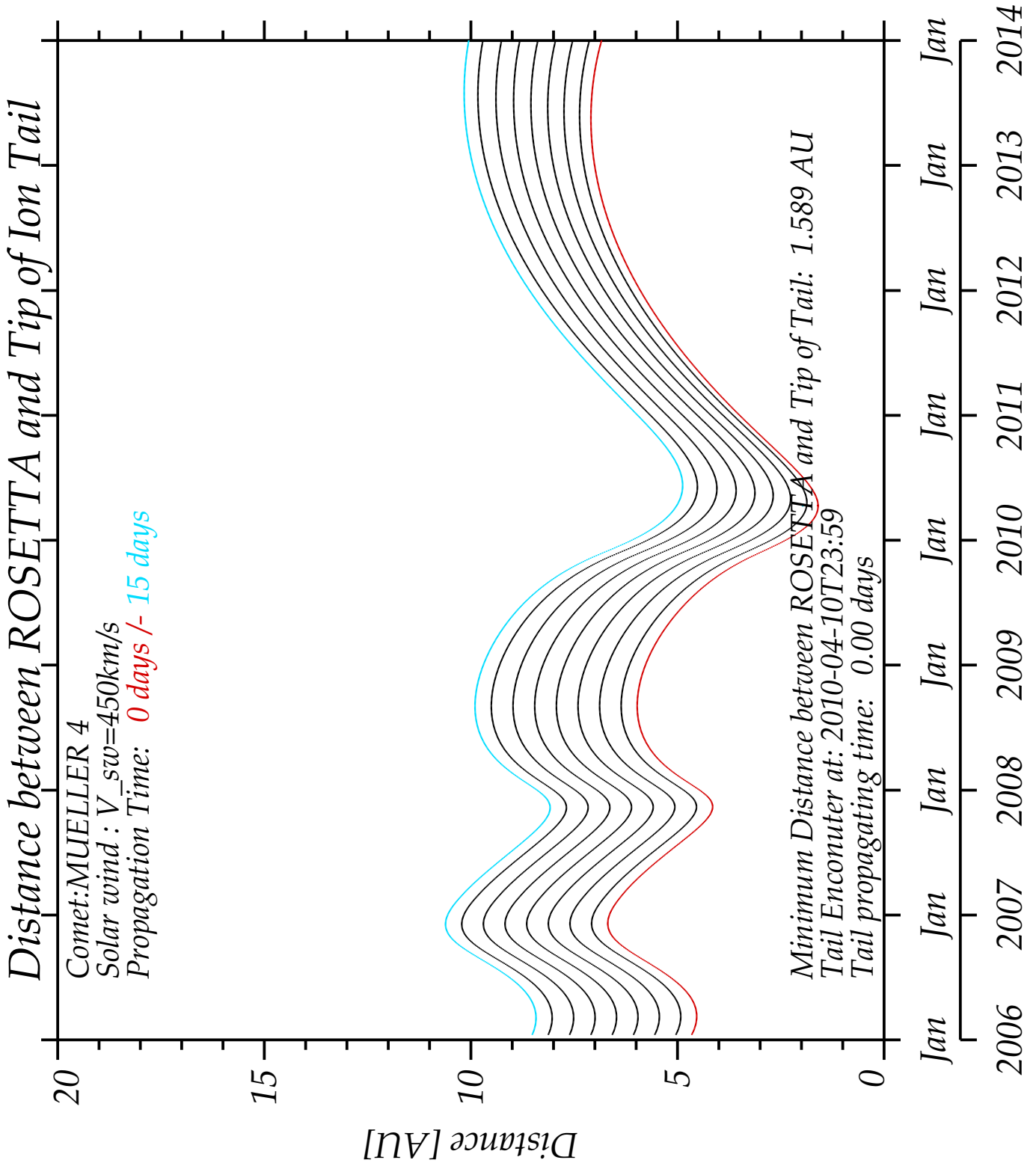


Figure 307: Minimum Distances: ROSETTA - MUELLER 4

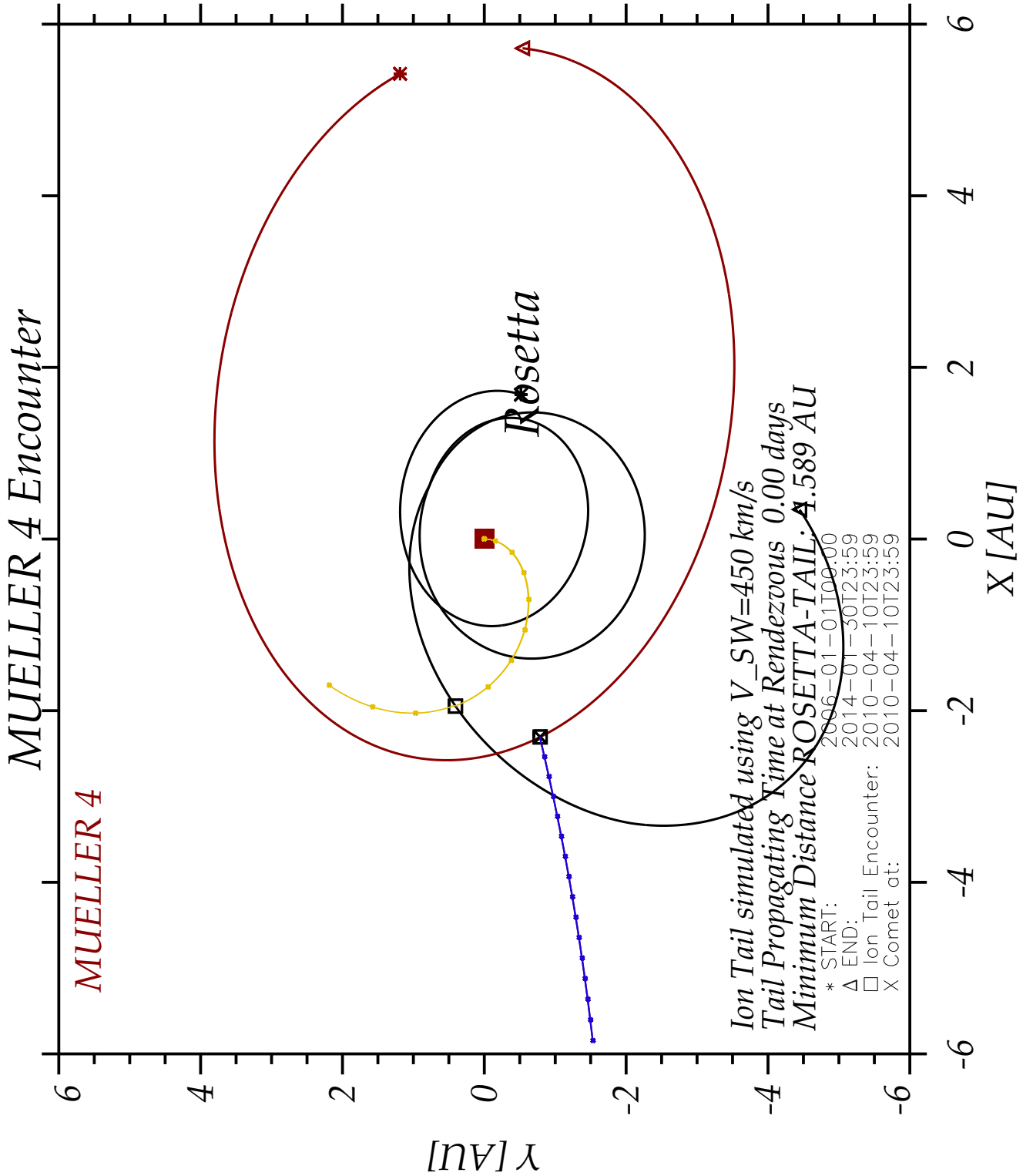


Figure 308: Overview: ROSETTA - MUELLER 4



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## 157 Comet 150P/LONEOS 150

<b>Comet: 150P/LONEOS 150</b>
<b>No Encounter below 0.2000AU</b>

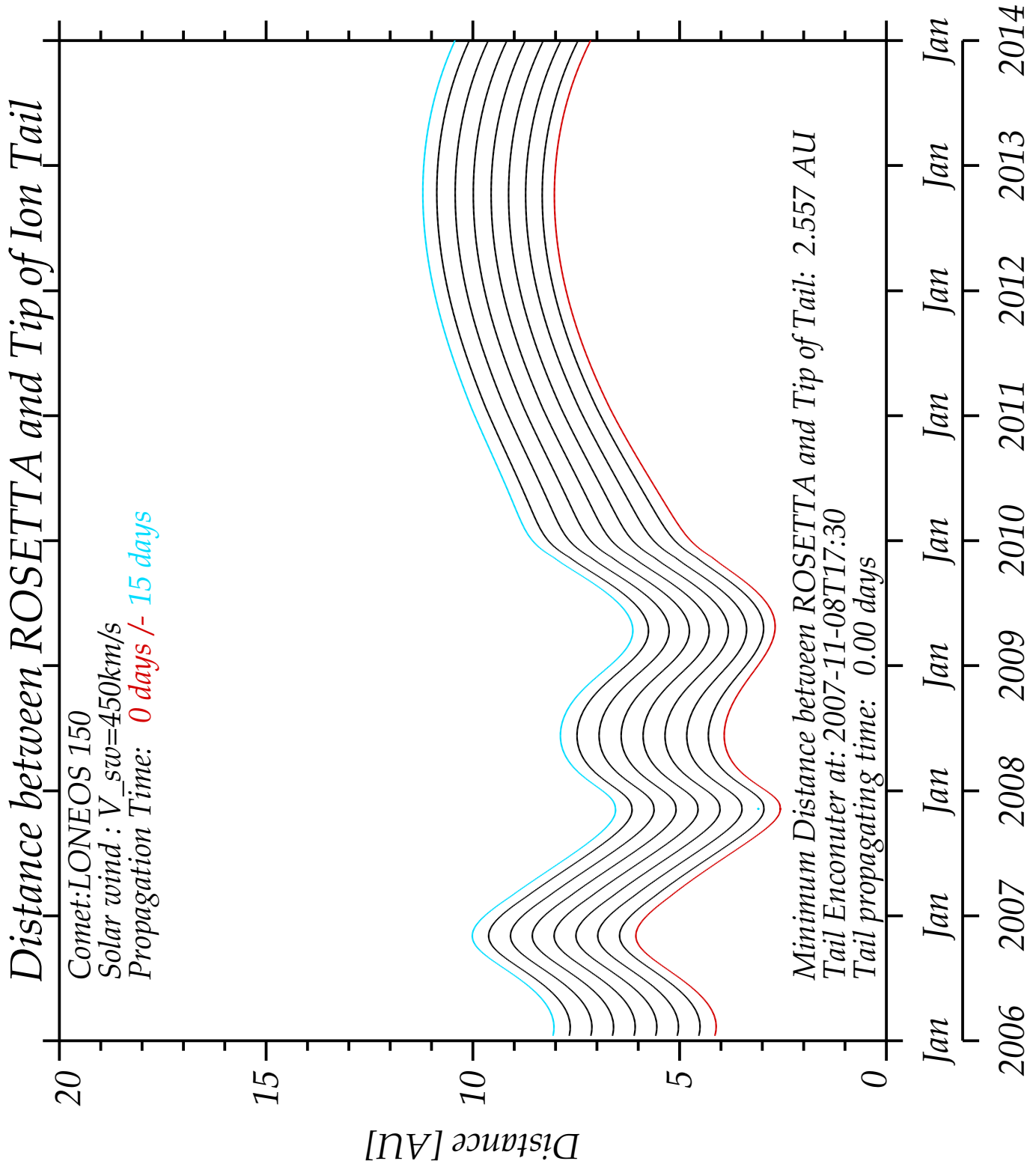


Figure 309: Minimum Distances: ROSETTA - LONEOS 150

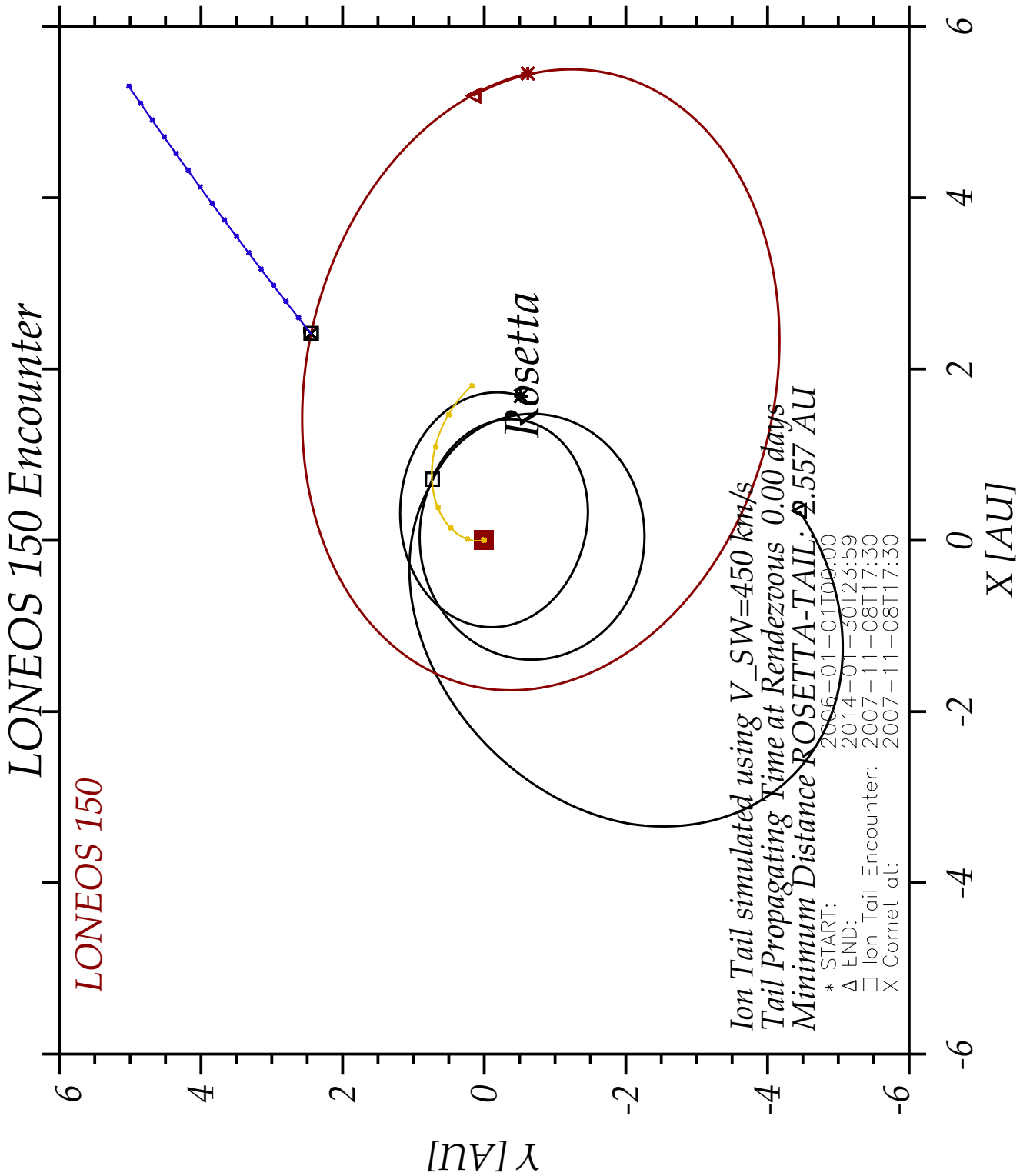


Figure 310: Overview: ROSETTA - LONEOS 150

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## **158 Comet 151P/HELIN**

<b>Comet: 151P/HELIN</b>
<b>No Encounter below 0.2000AU</b>

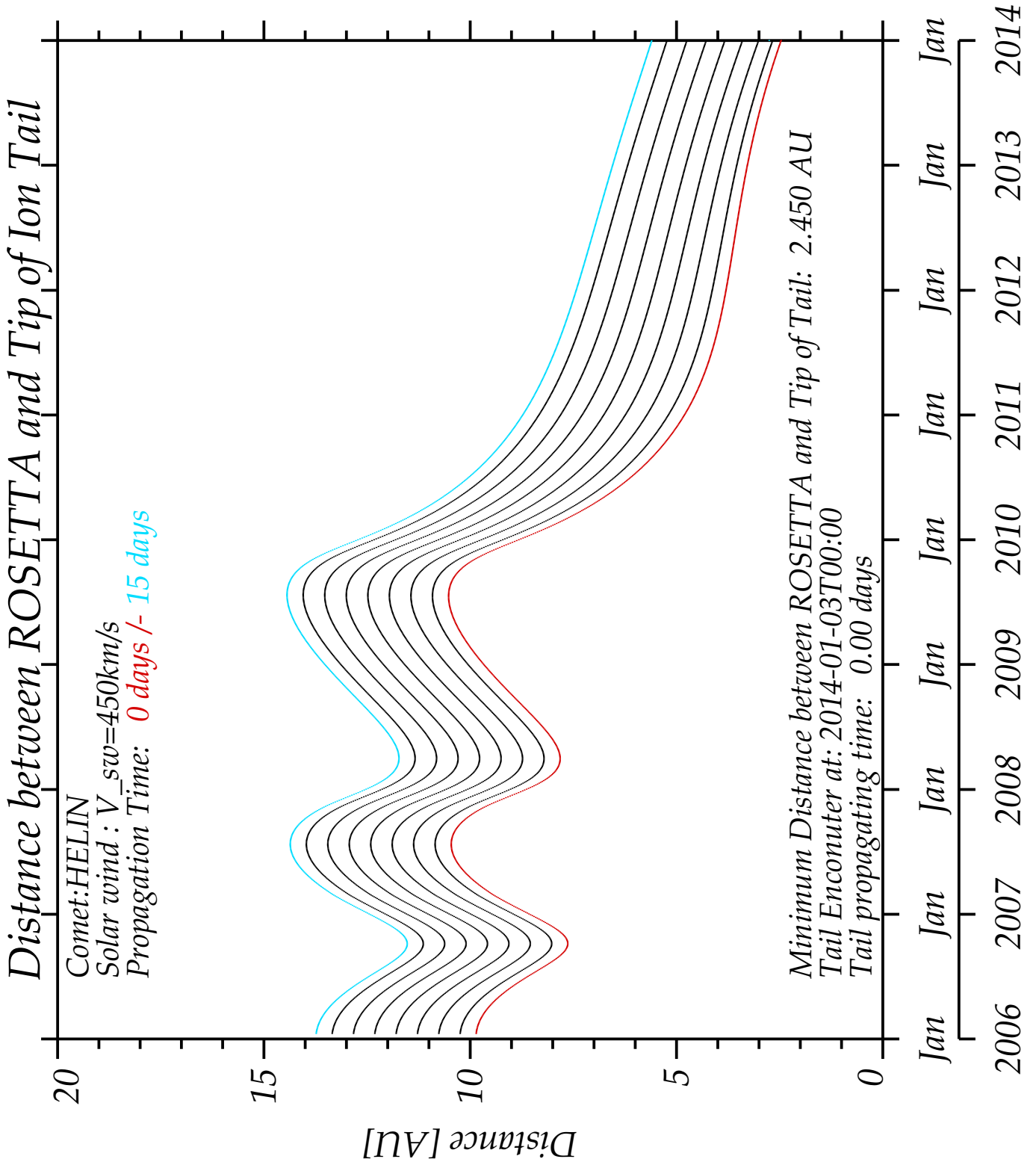


Figure 311: Minimum Distances: ROSETTA - HELIN

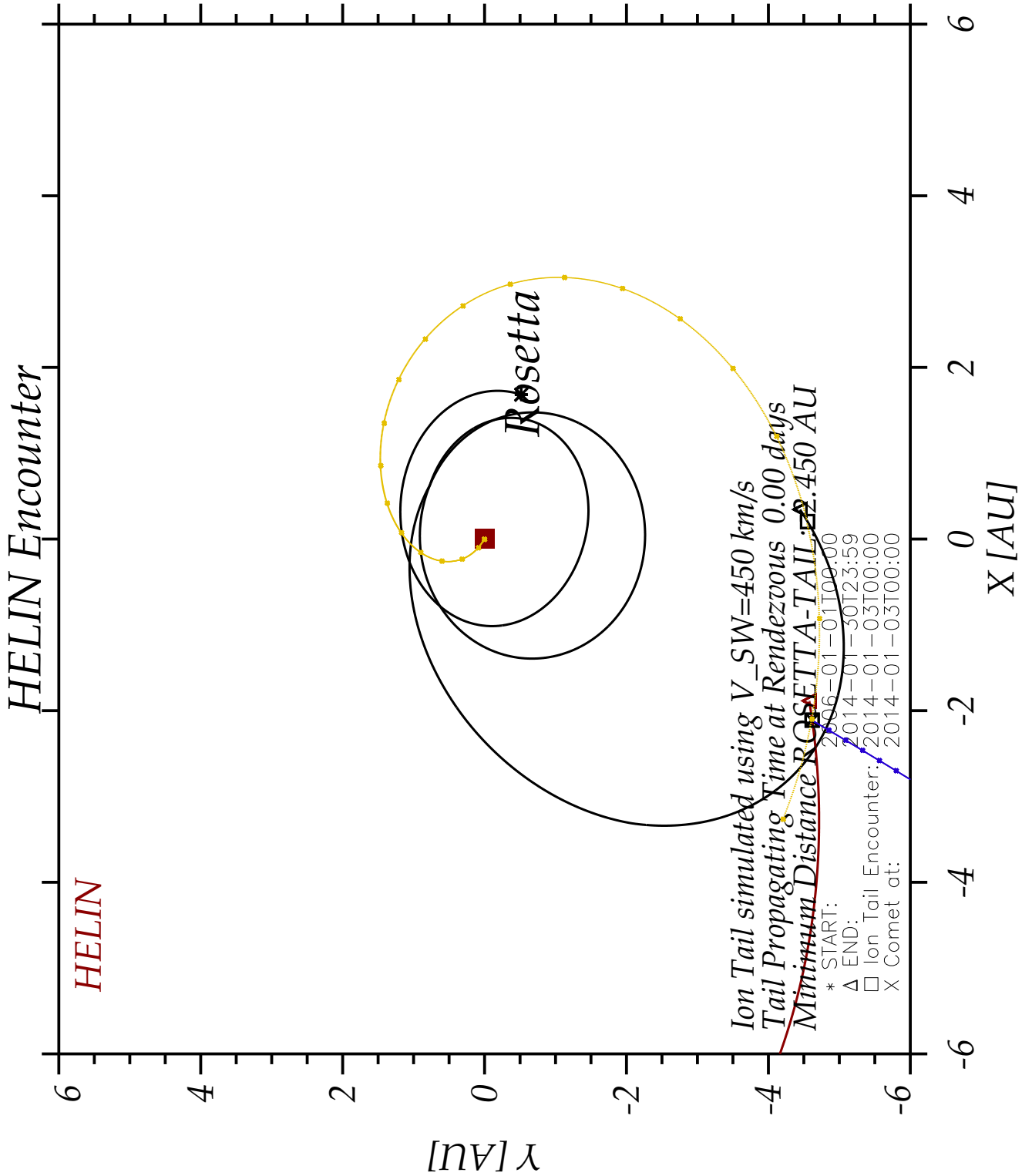


Figure 312: Overview: ROSETTA - HELIN

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## 159 Comet 152P/HELIN-LAWRENCE

<b>Comet: 152P/HELIN-LAWRENCE</b>
<b>No Encounter below 0.2000AU</b>

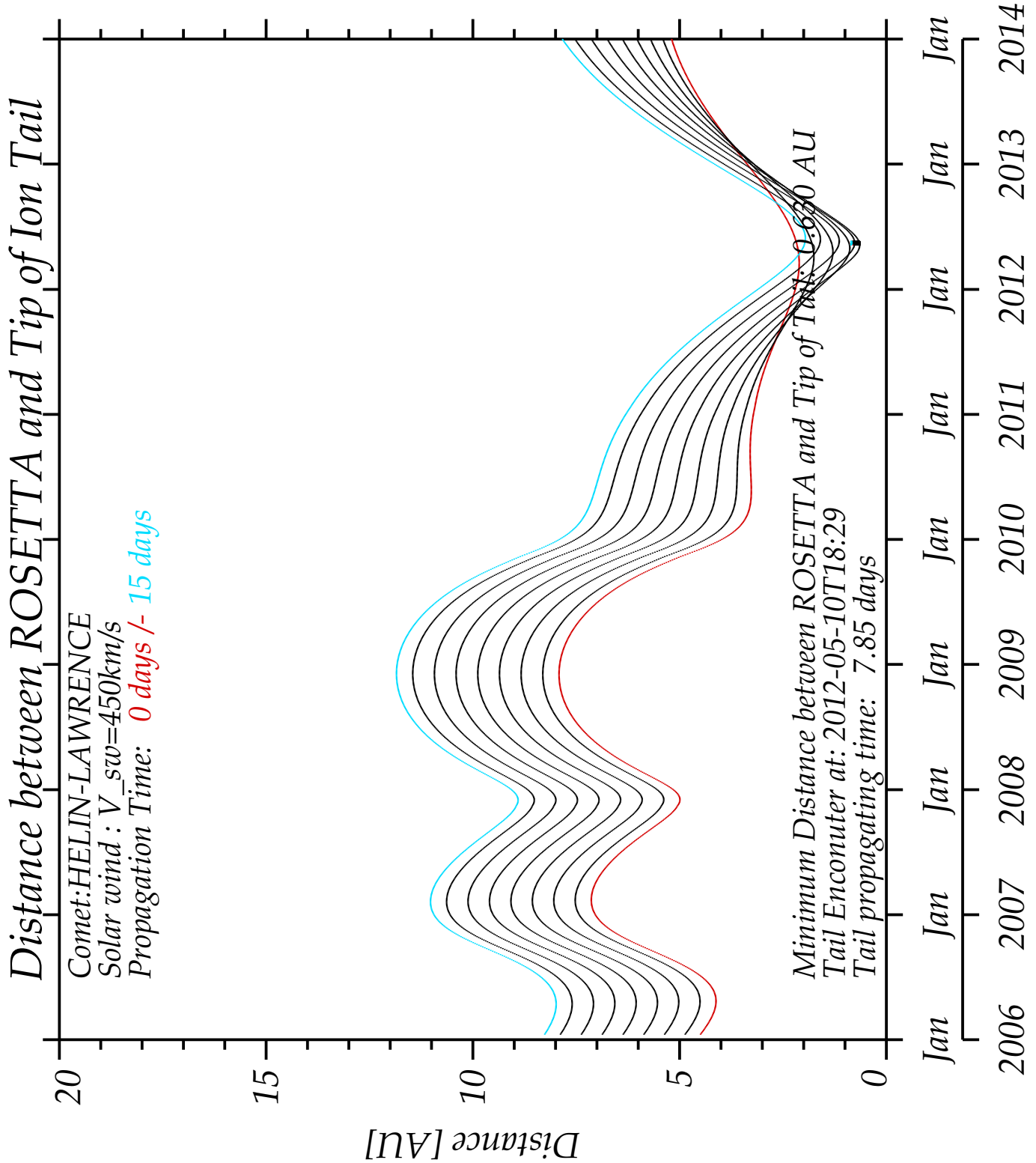


Figure 313: Minimum Distances: ROSETTA - HELIN-LAWRENCE



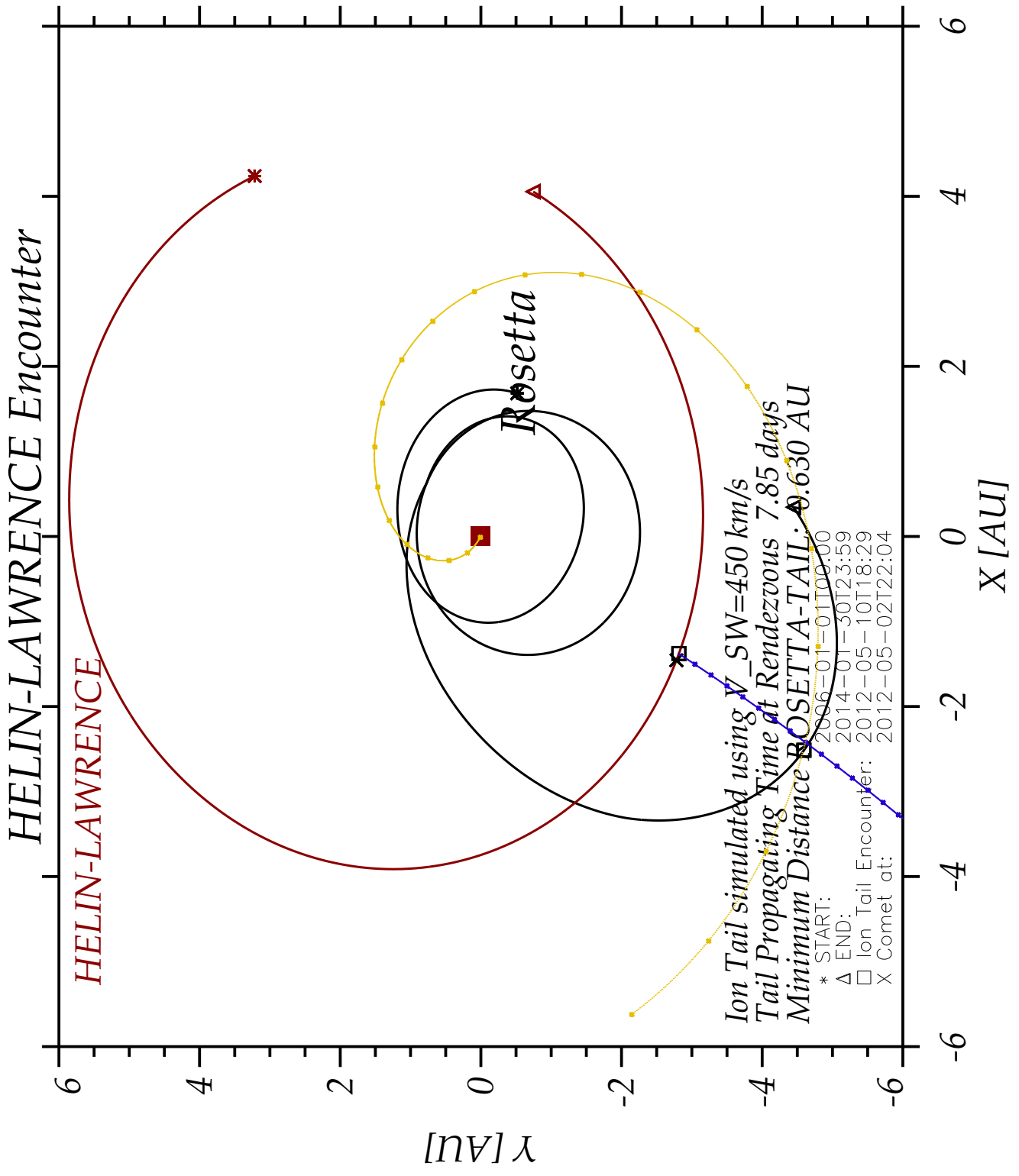


Figure 314: Overview: ROSETTA - HELIN-LAWRENCE

<p style="text-align: center;">R O S E T T A</p>	<p>Document: RO-IGEP-TR-0020  Issue: 1  Revision: 2</p>
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## 160 Comet 153P/IKEYA-ZHANG

<p><b>Comet: 153P/IKEYA-ZHANG</b></p>
<p><b>No Encounter below 0.2000AU</b></p>

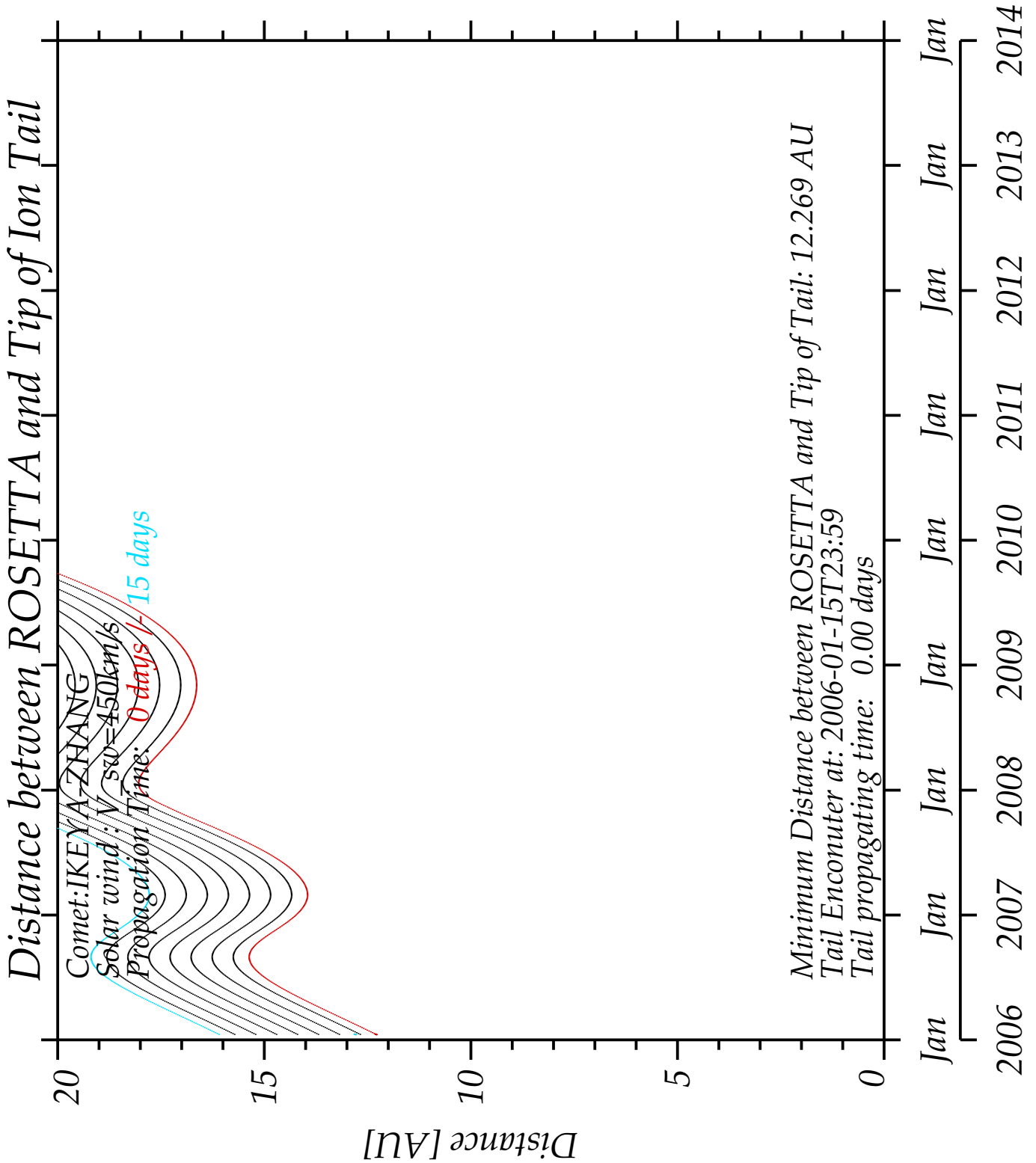


Figure 315: Minimum Distances: ROSETTA - IKEYA-ZHANG

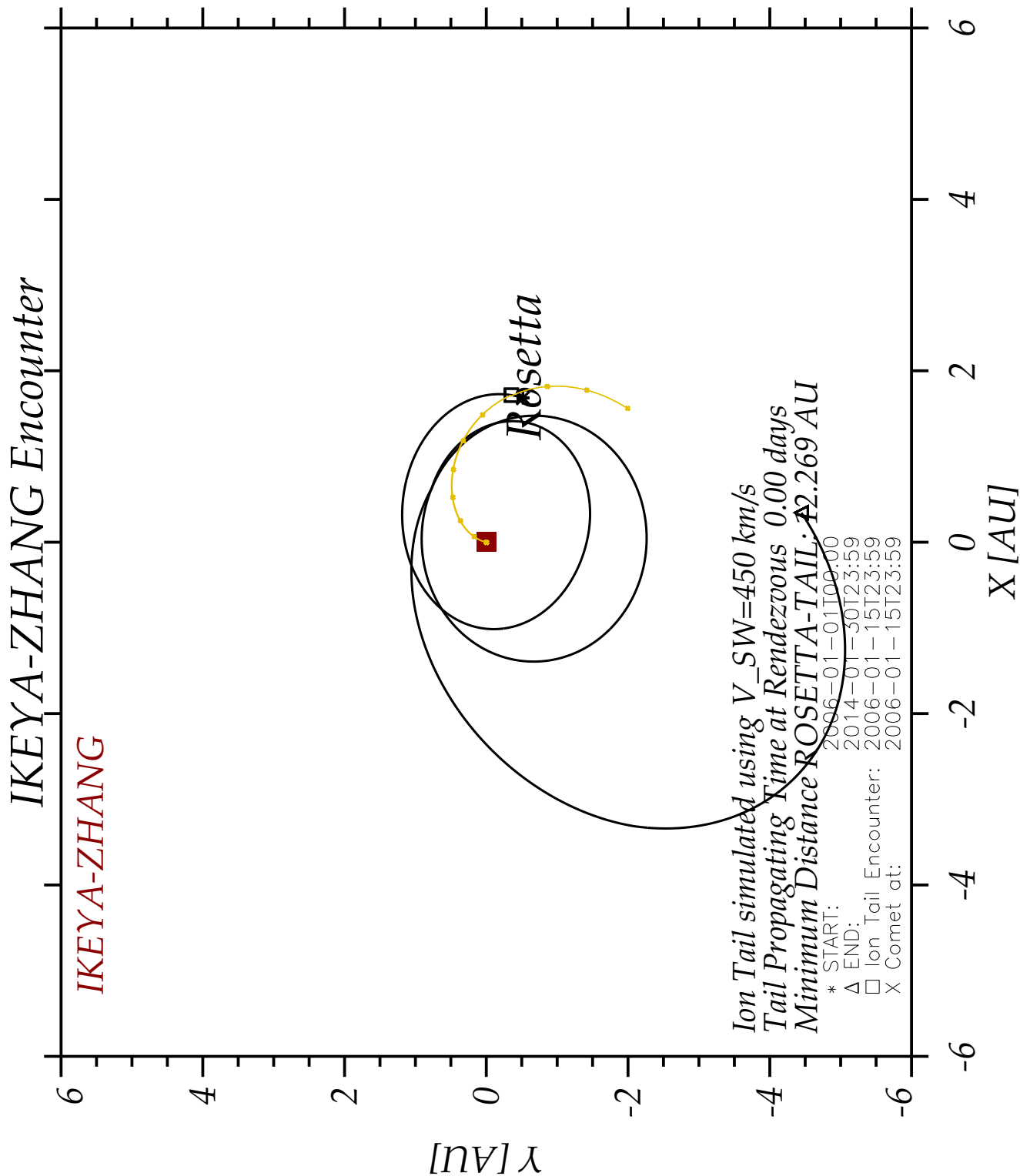


Figure 316: Overview: ROSETTA - IKEYA-ZHANG

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## 161 Comet 154P/BREWINGTON

<b>Comet: 154P/BREWINGTON</b>
<b>No Encounter below 0.2000AU</b>

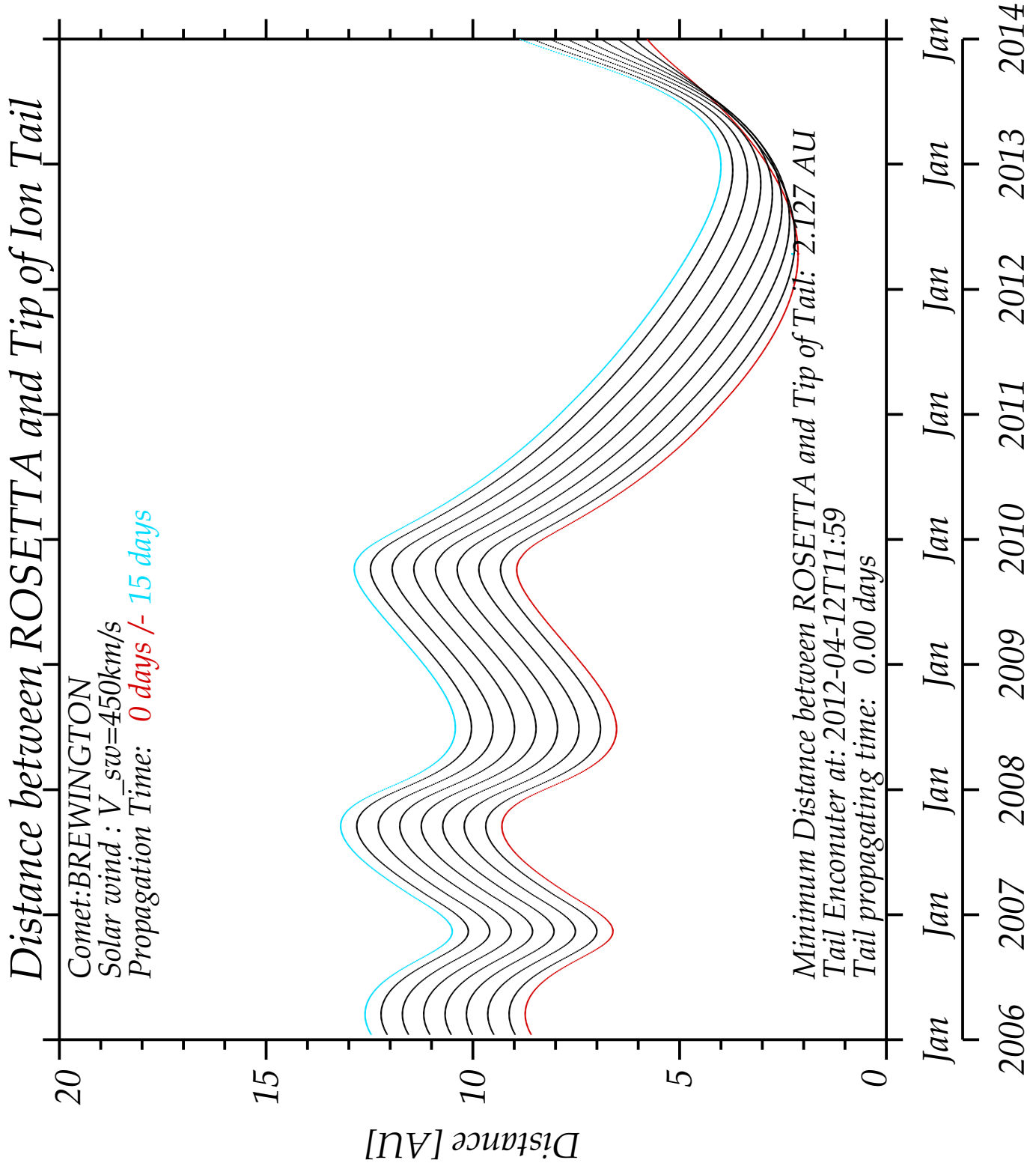


Figure 317: Minimum Distances: ROSETTA - BREWINGTON

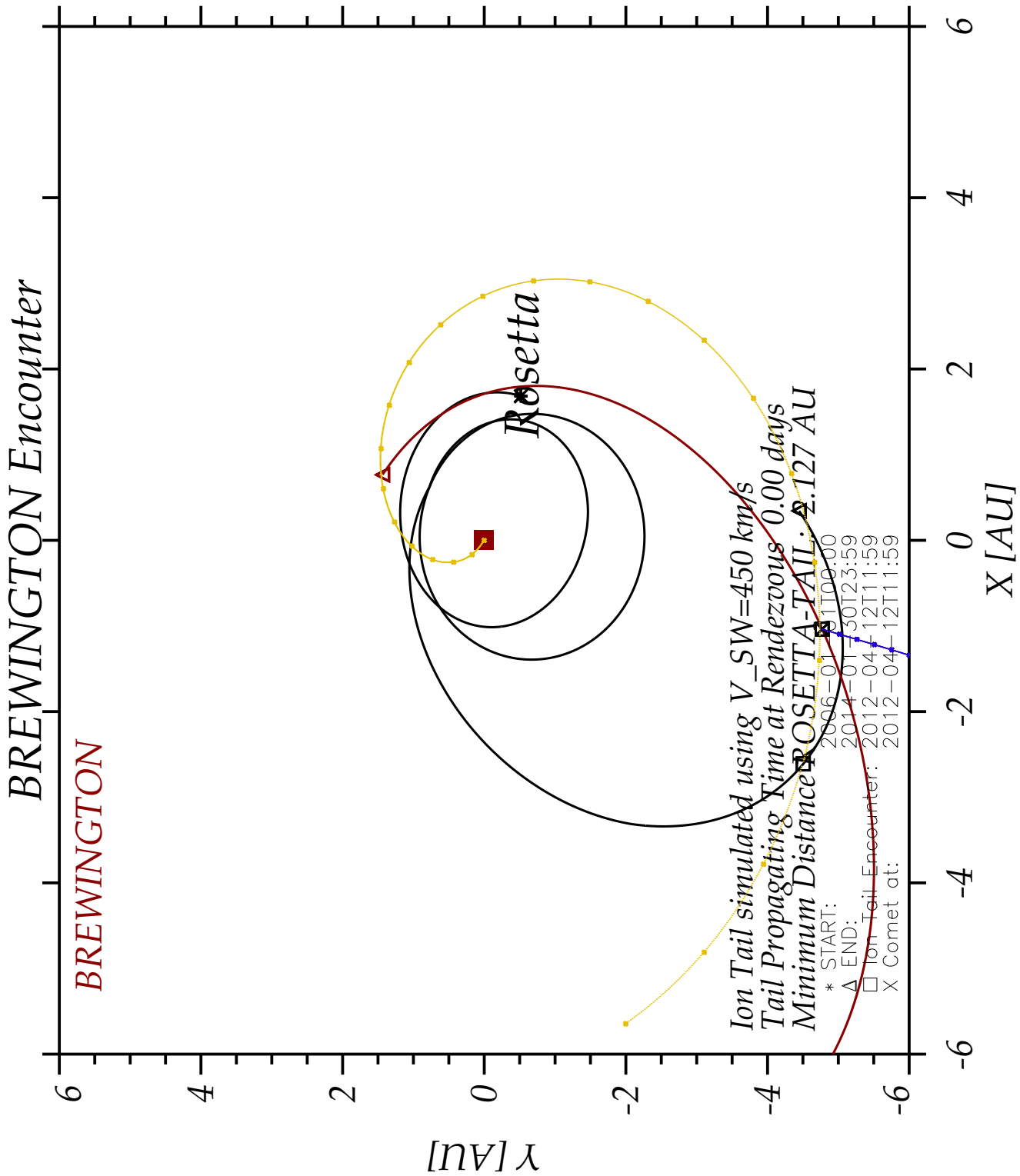


Figure 318: Overview: ROSETTA - BREWINGTON

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## **162 Comet 155P/SHOEMAKER 3**

<b>Comet: 155P/SHOEMAKER 3</b>
<b>No Encounter below 0.2000AU</b>



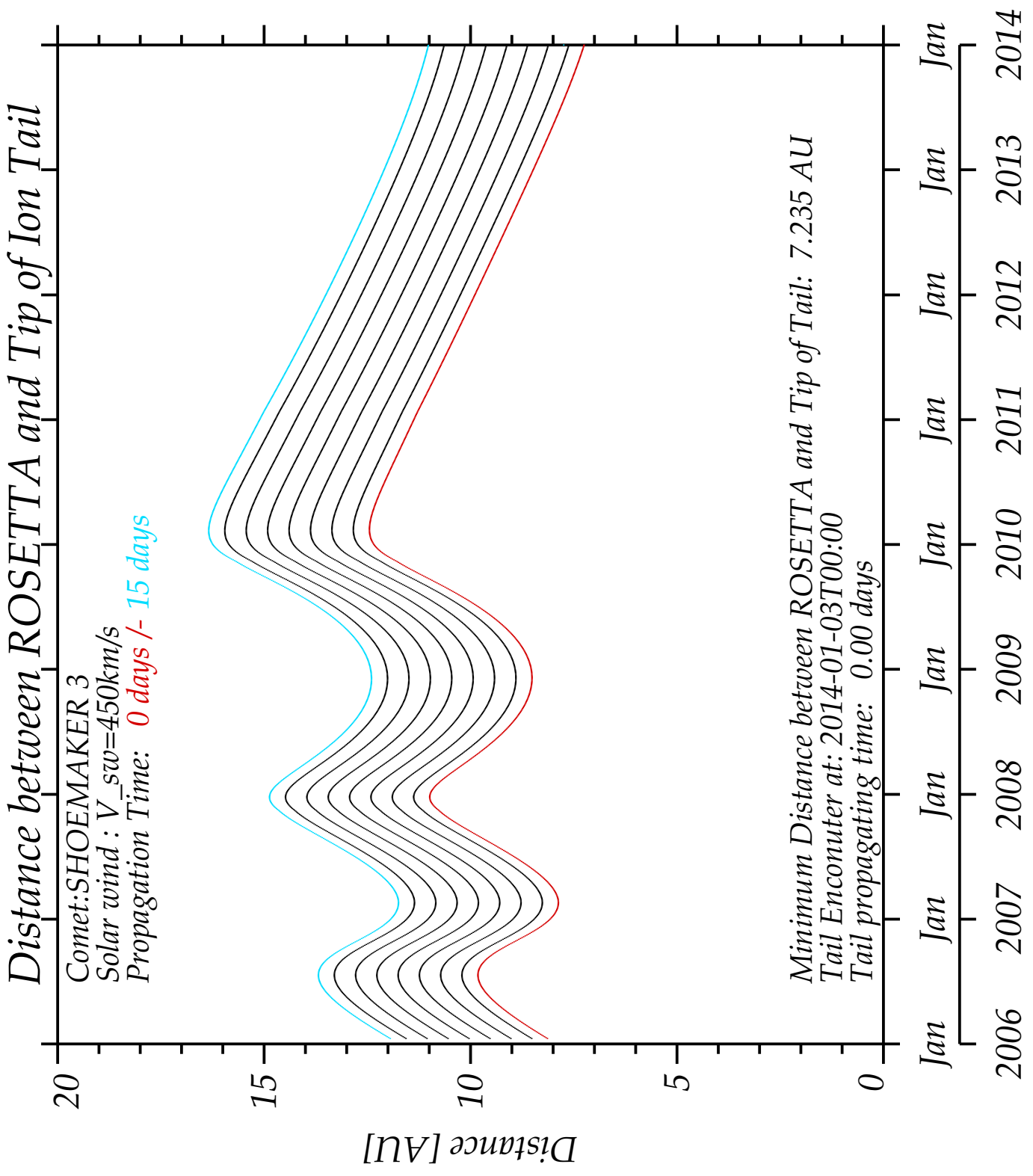


Figure 319: Minimum Distances: ROSETTA - SHOEMAKER 3

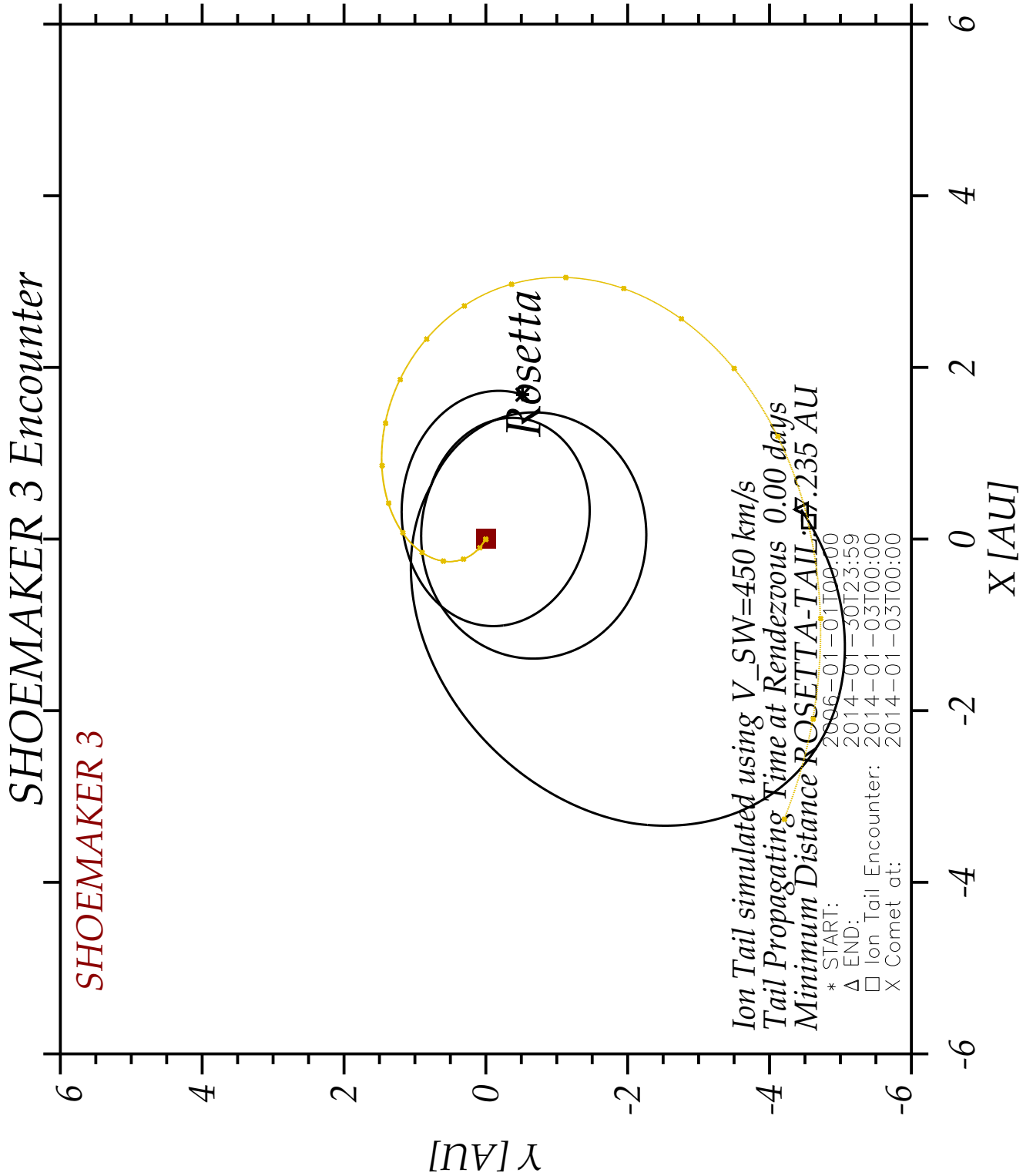


Figure 320: Overview: ROSETTA - SHOEMAKER 3

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## 163 Comet 156P/RUSSELL-LINEAR

<b>Comet: 156P/RUSSELL-LINEAR</b>
<b>No Encounter below 0.2000AU</b>

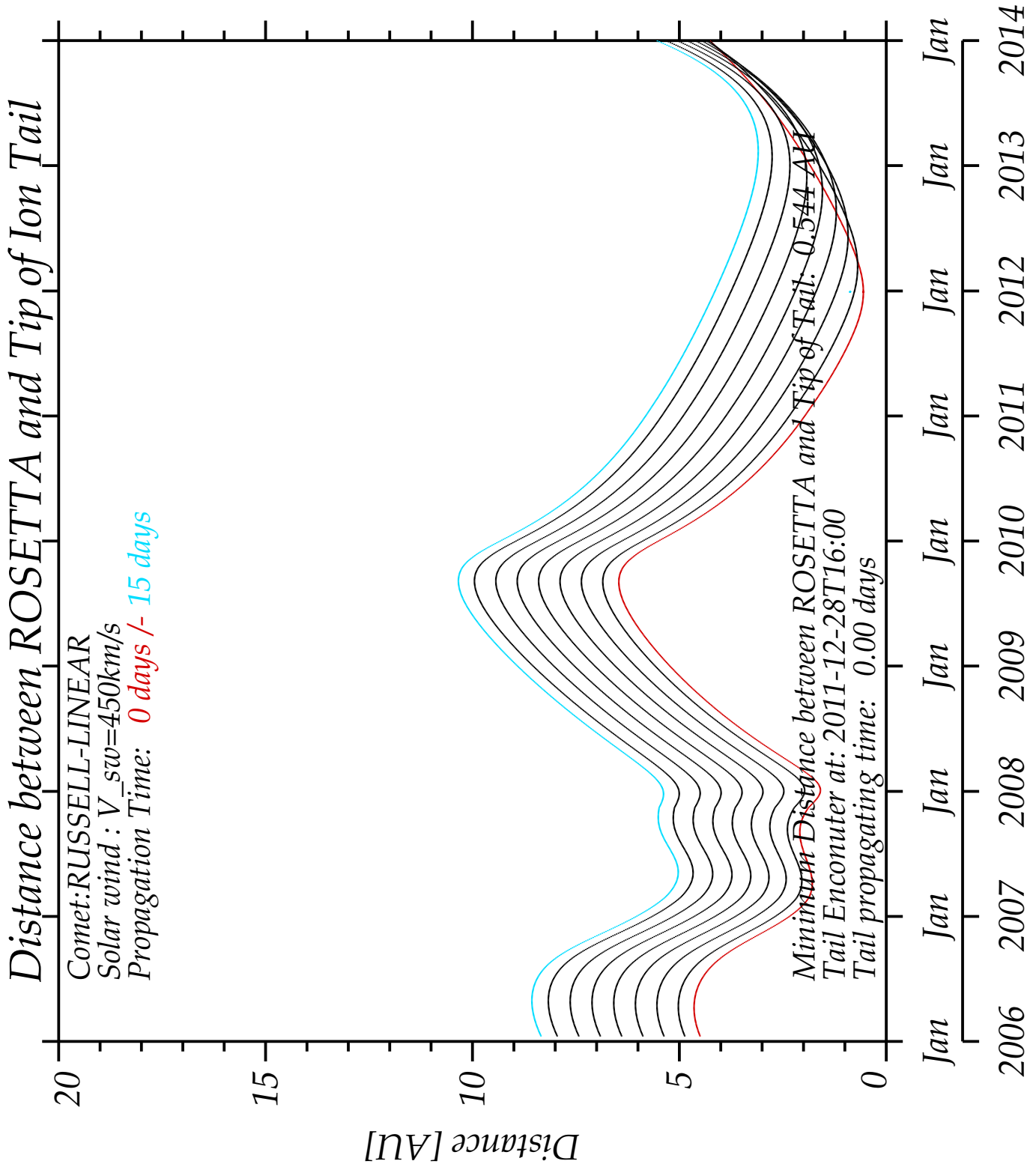


Figure 321: Minimum Distances: ROSETTA - RUSSELL-LINEAR

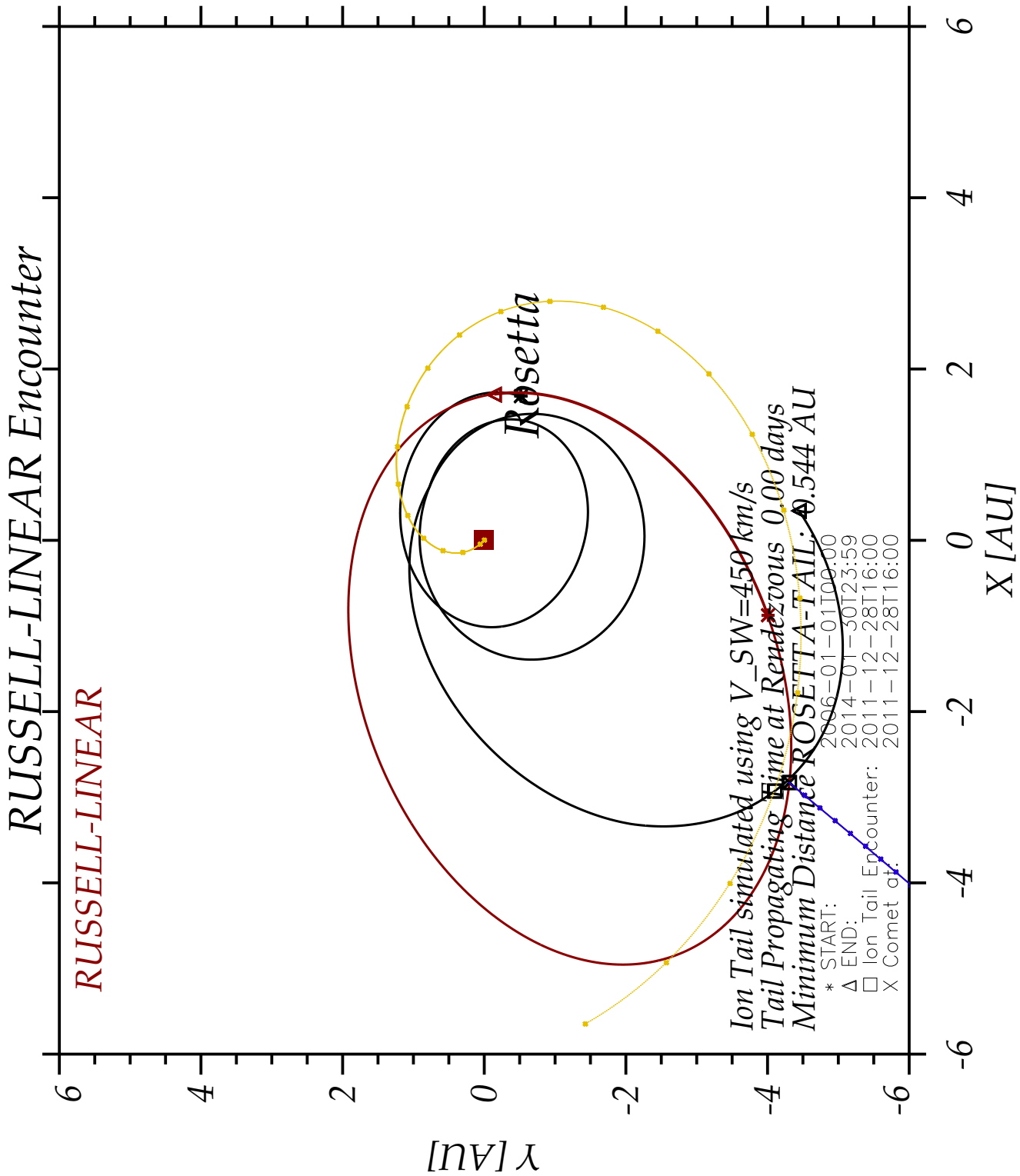


Figure 322: Overview: ROSETTA - RUSSELL-LINEAR

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## 164 Comet 157P/TRITTON

<b>Comet: 157P/TRITTON</b>
<b>No Encounter below 0.2000AU</b>

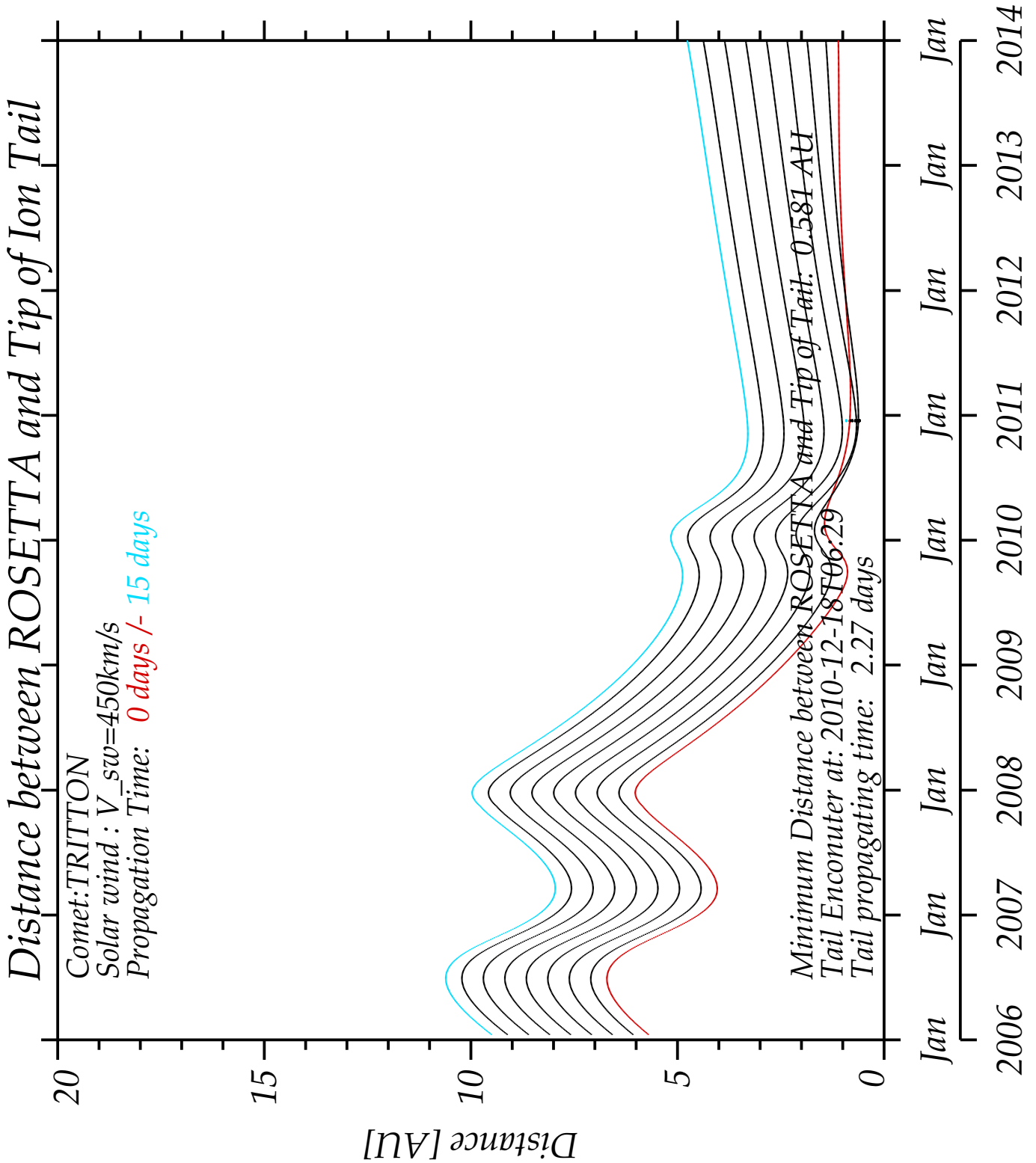


Figure 323: Minimum Distances: ROSETTA - TRITTON

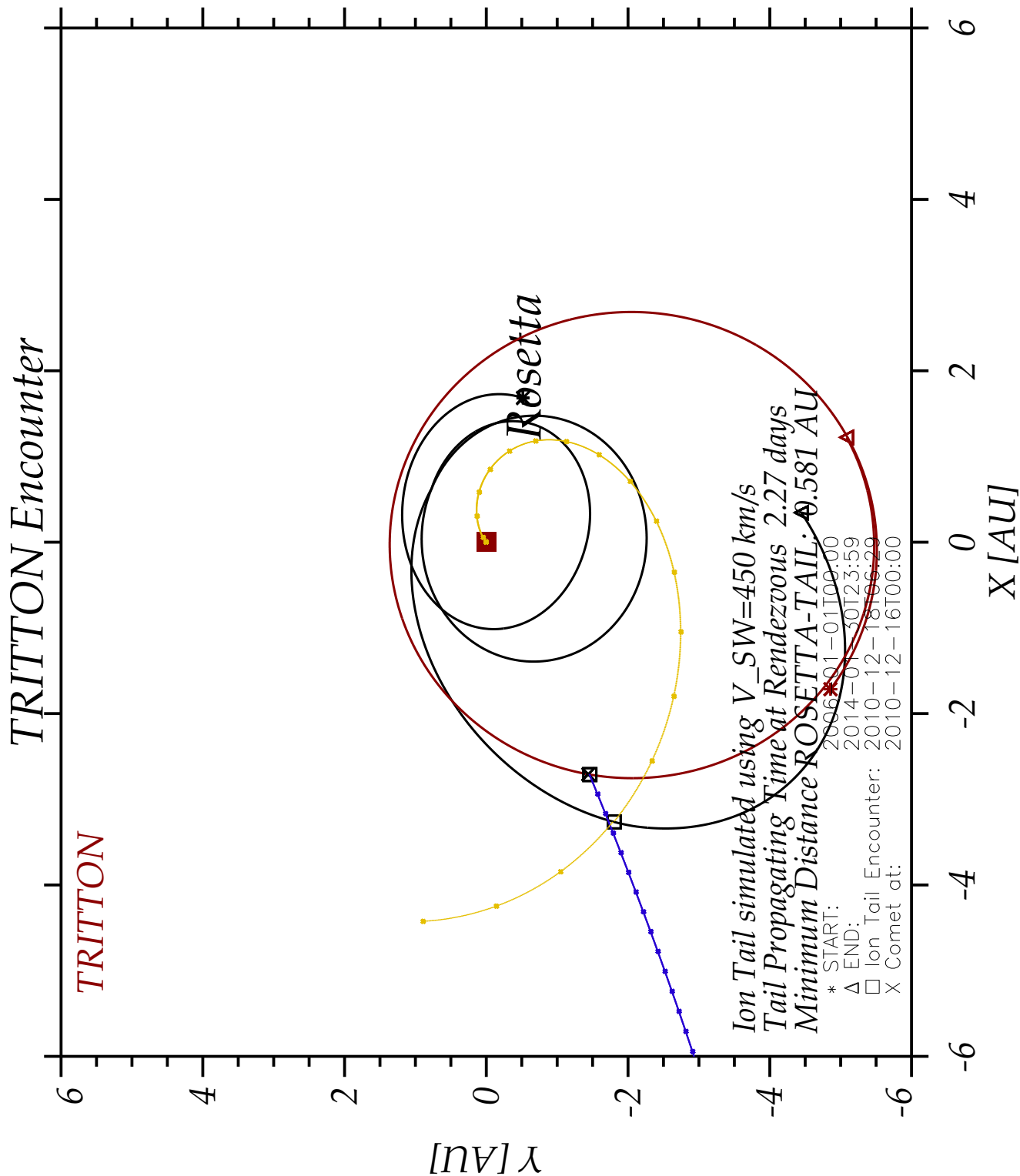


Figure 324: Overview: ROSETTA - TRITTON



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## 165 Comet 158P/KOWAL-LINEAR

<b>Comet: 158P/KOWAL-LINEAR</b>
<b>No Encounter below 0.2000AU</b>

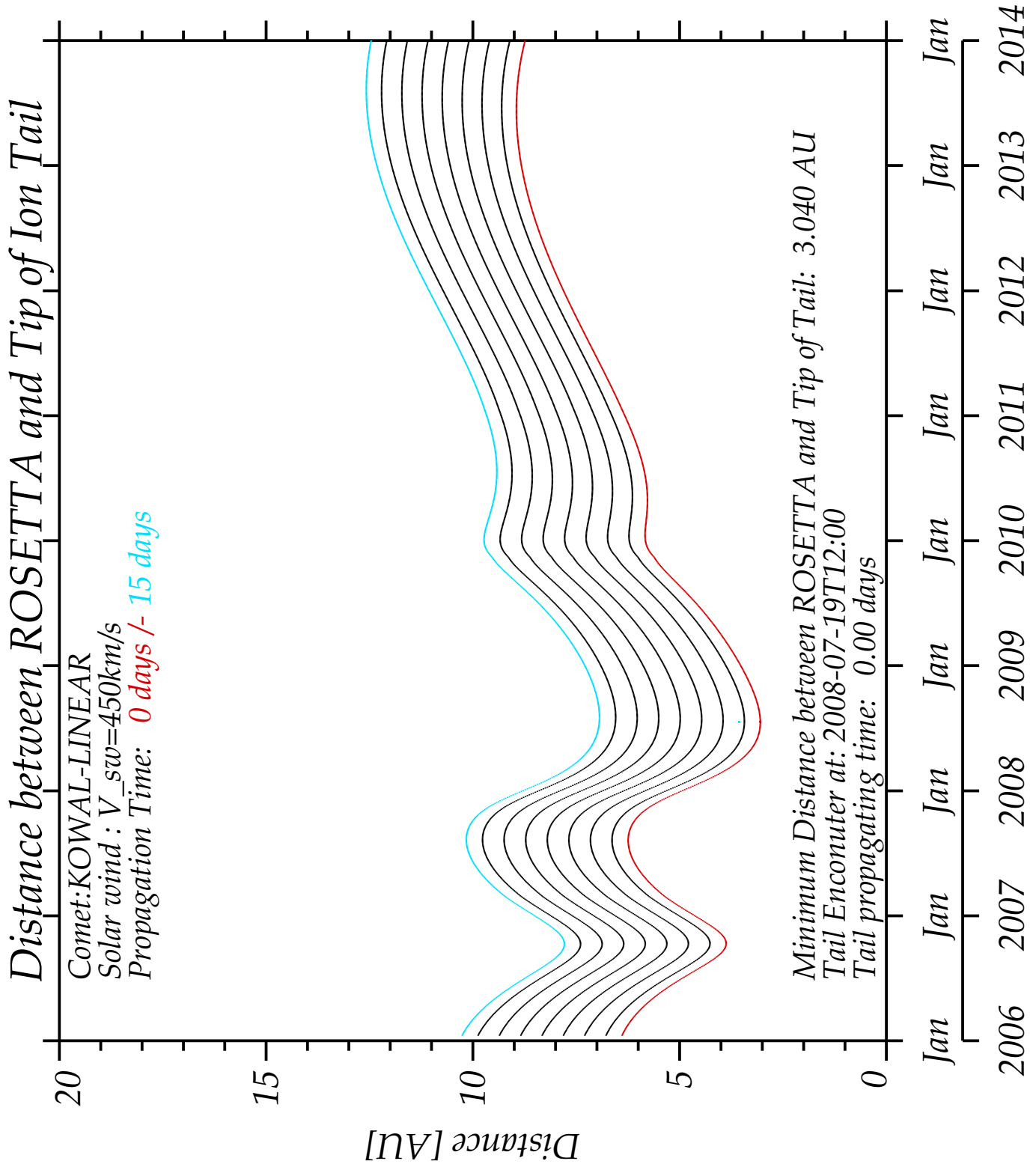


Figure 325: Minimum Distances: ROSETTA - KOWAL-LINEAR

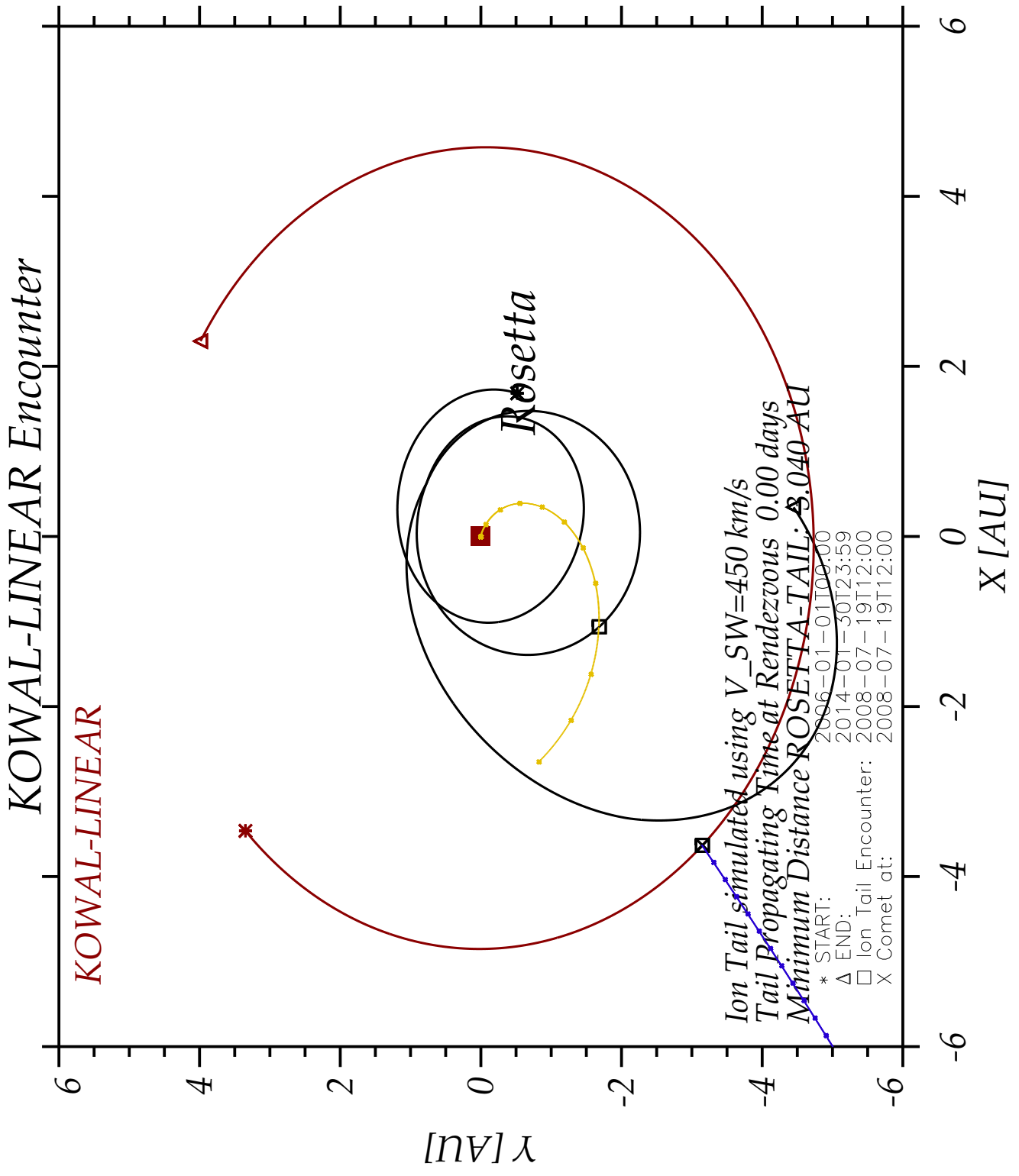


Figure 326: Overview: ROSETTA - KOWAL-LINEAR

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**166 Comet 159P/LONEOS 159**

<b>Comet: 159P/LONEOS 159</b>
<b>No Encounter below 0.2000AU</b>

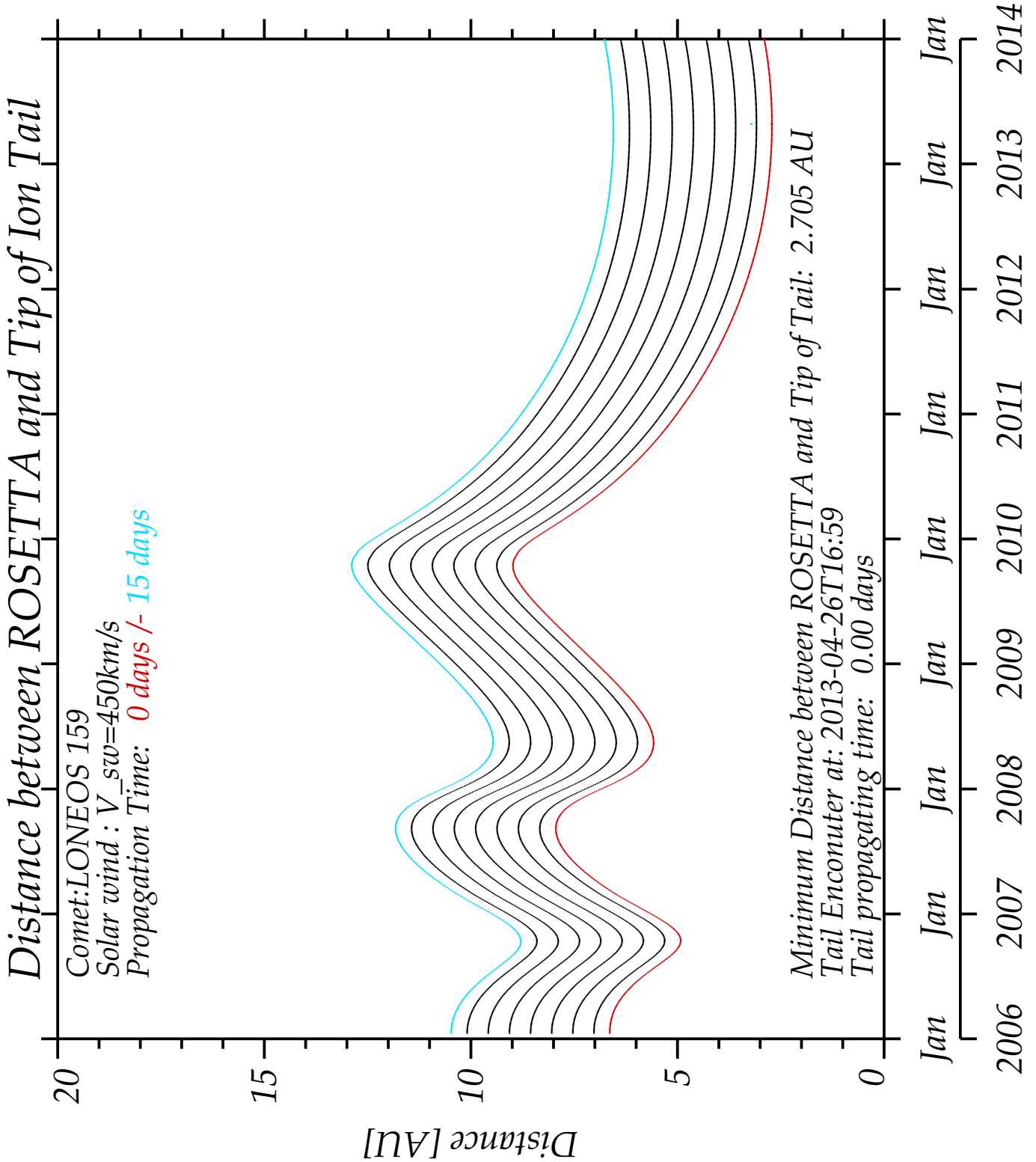


Figure 327: Minimum Distances: ROSETTA - LONEOS 159

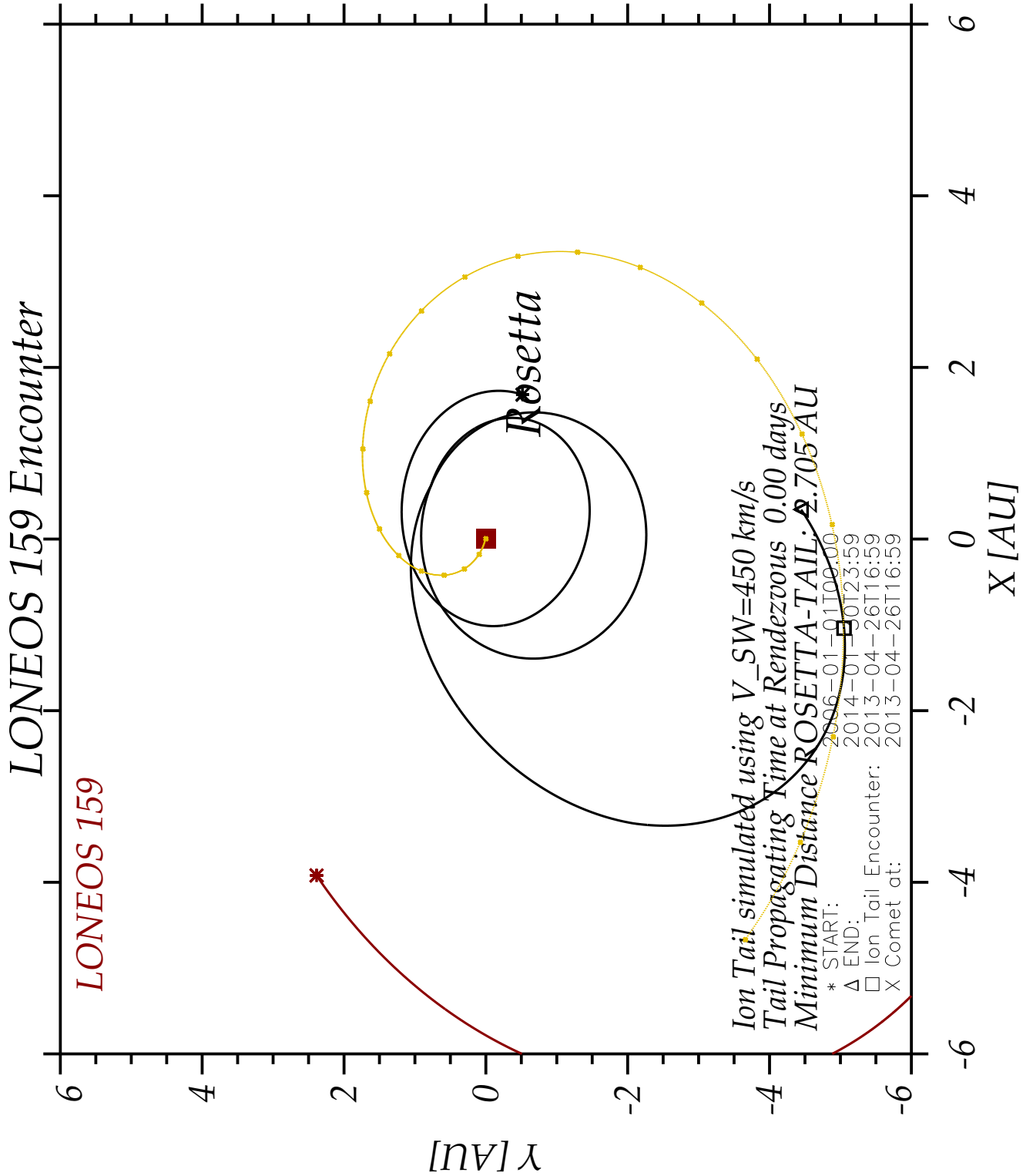


Figure 328: Overview: ROSETTA - LONEOS 159

<p style="text-align: center;">R O S E T T A</p>	<p>Document: RO-IGEP-TR-0020  Issue: 1  Revision: 2  Date: 2006-10-25  Page: 494</p>
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## 167 Comet 160P/LINEAR 160

<p><b>Comet: 160P/LINEAR 160</b></p>
<p><b>No Encounter below 0.2000AU</b></p>

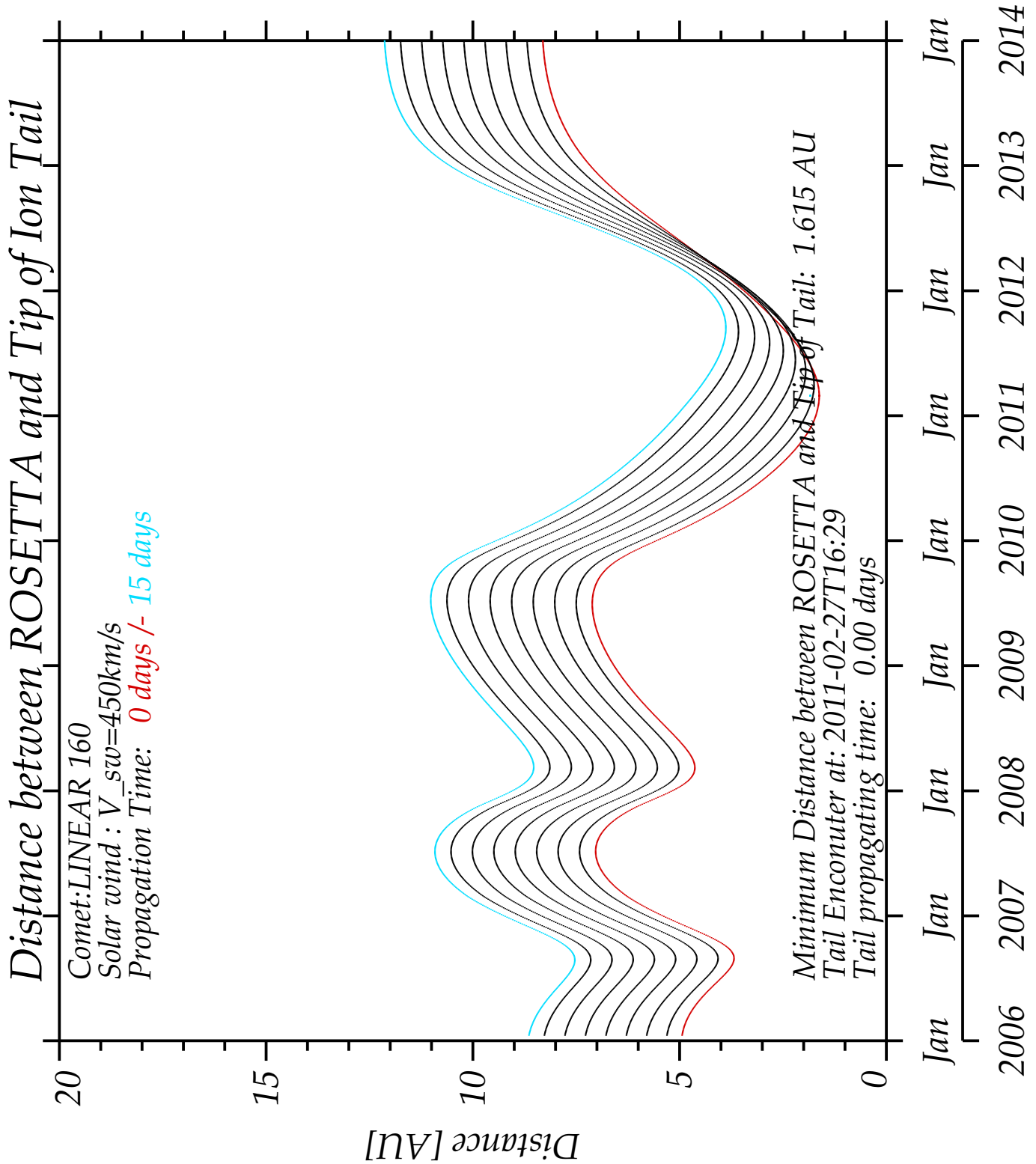


Figure 329: Minimum Distances: ROSETTA - LINEAR 160



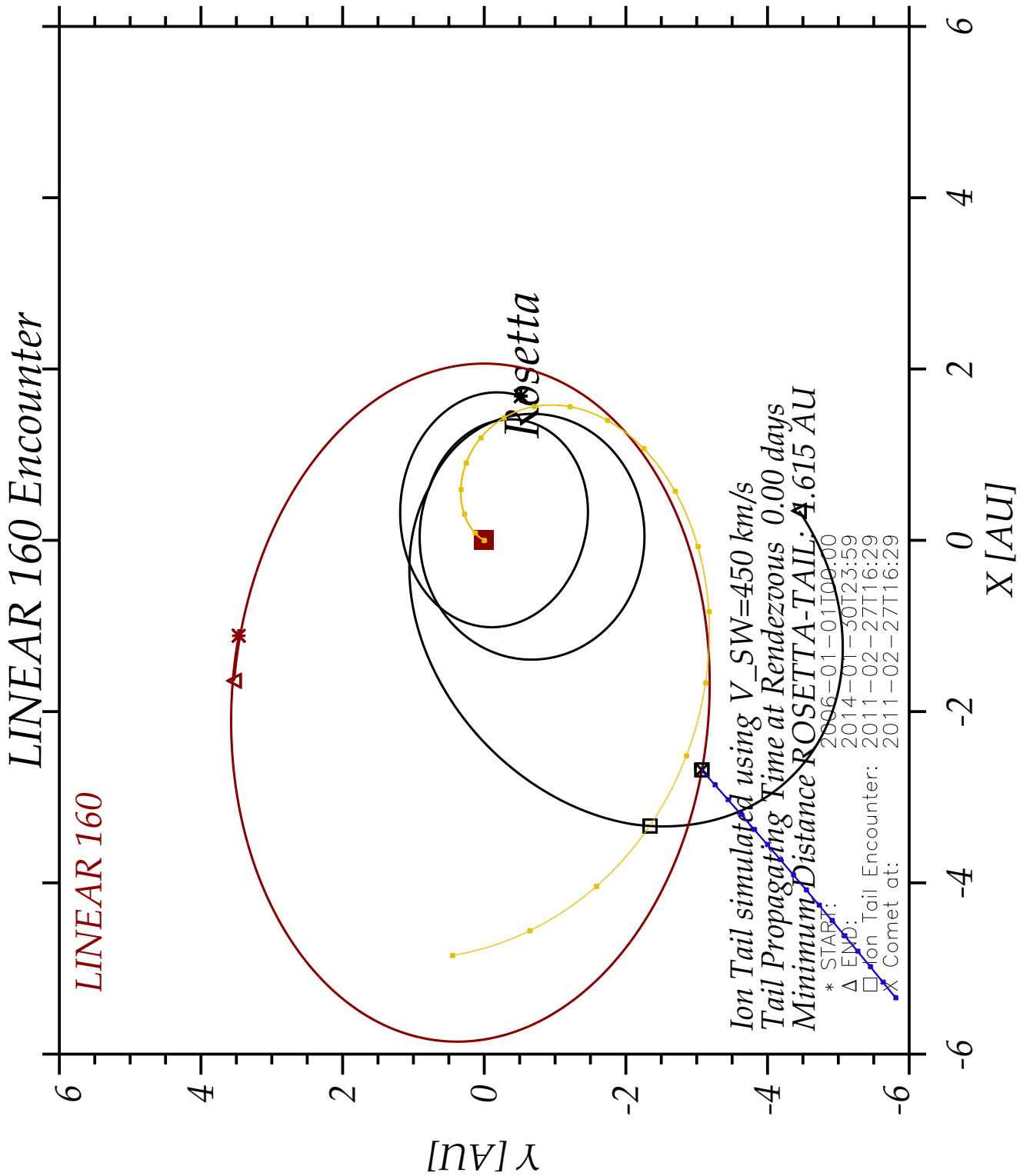


Figure 330: Overview: ROSETTA - LINEAR 160

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## 168 Comet 161P/HARTLEY-IRAS

<b>Comet: 161P/HARTLEY-IRAS</b>
<b>No Encounter below 0.2000AU</b>

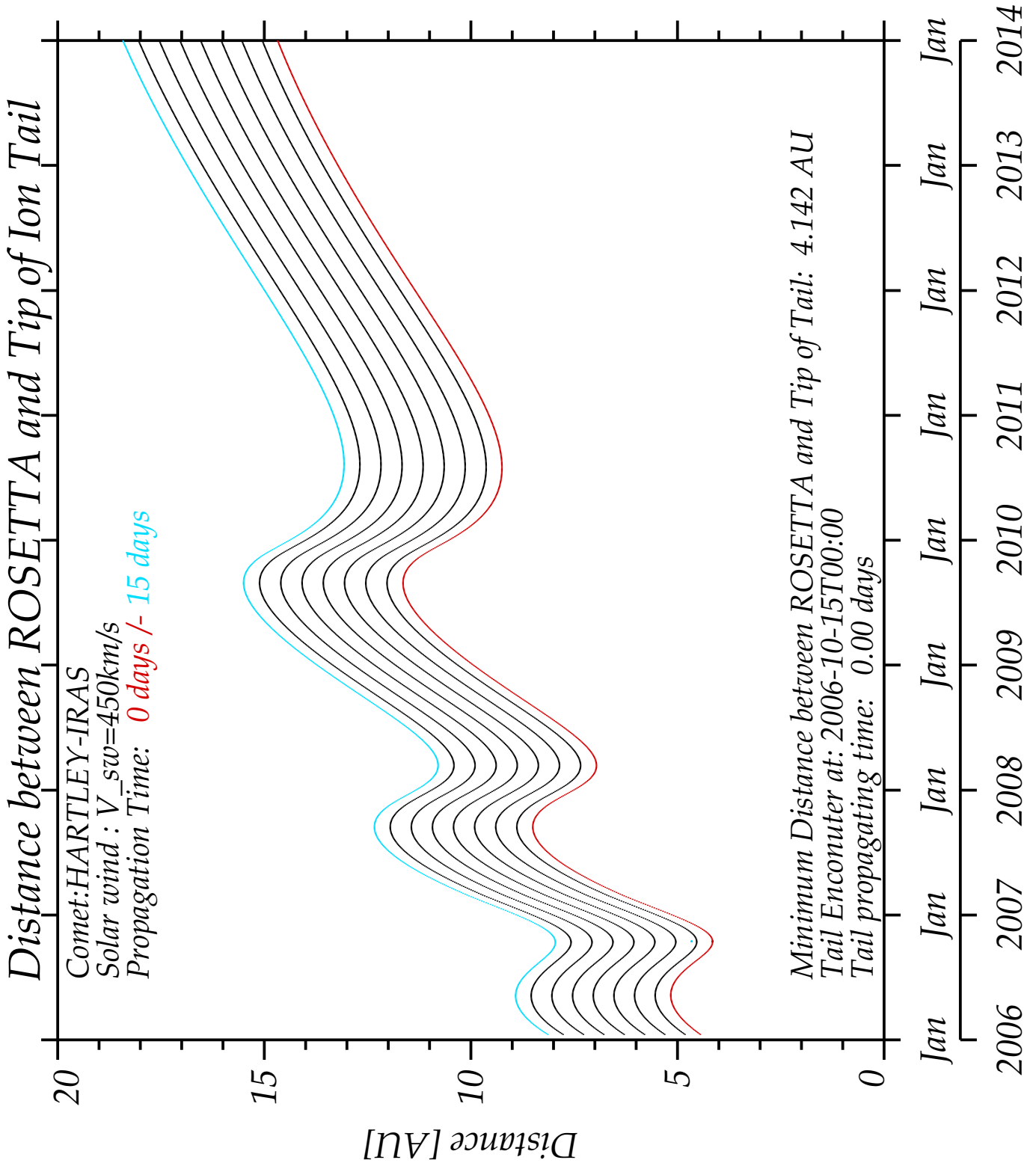


Figure 331: Minimum Distances: ROSETTA - HARTLEY-IRAS

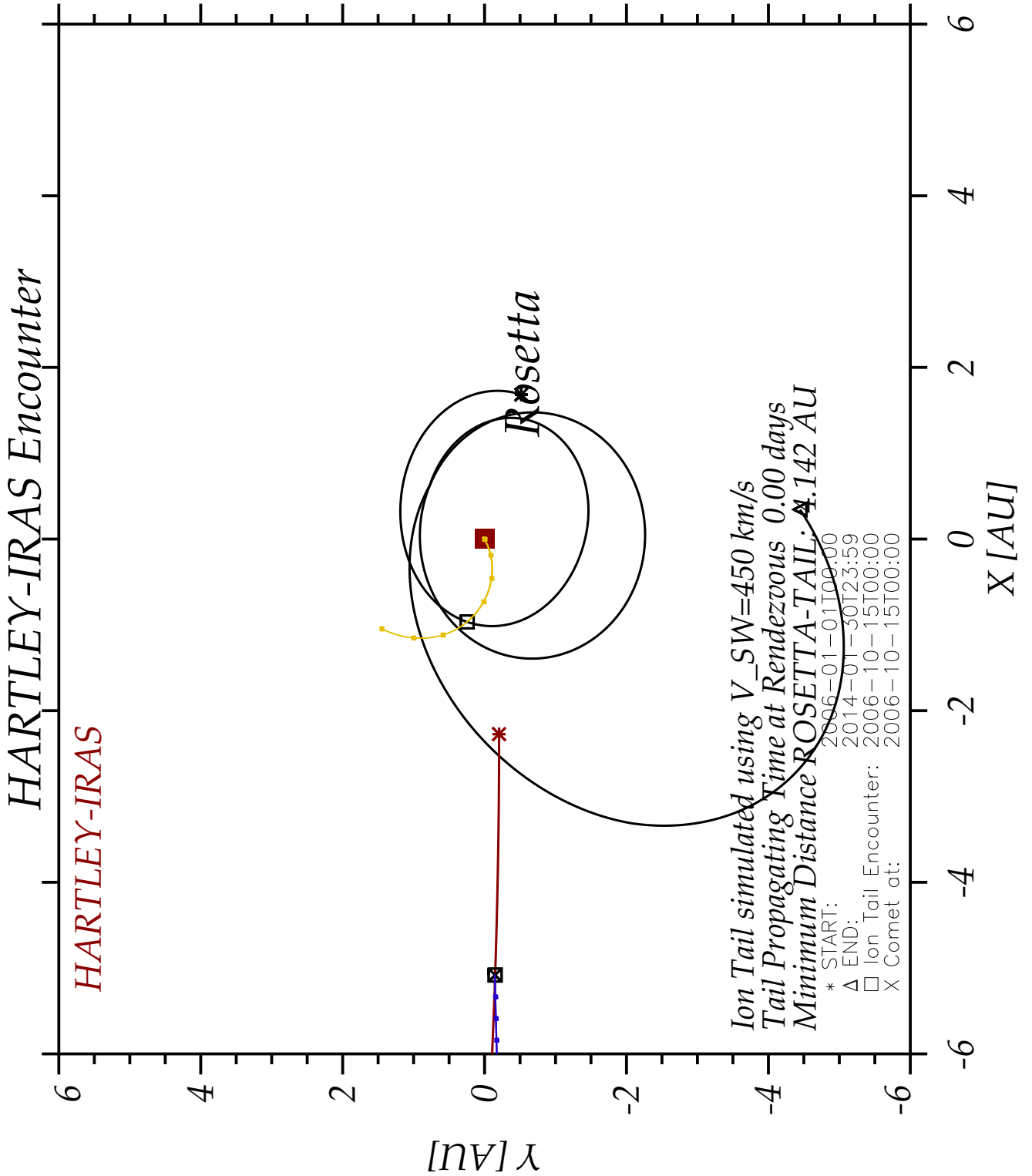


Figure 332: Overview: ROSETTA - HARTLEY-IRAS

<p style="text-align: center;">R O S E T T A</p>	<p>Document: RO-IGEP-TR-0020  Issue: 1  Revision: 2  Date: 2006-10-25  Page: 500</p>
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## 169 Comet 162P/SIDING-SPRING

<p><b>Comet: 162P/SIDING-SPRING</b></p>
<p><b>No Encounter below 0.2000AU</b></p>

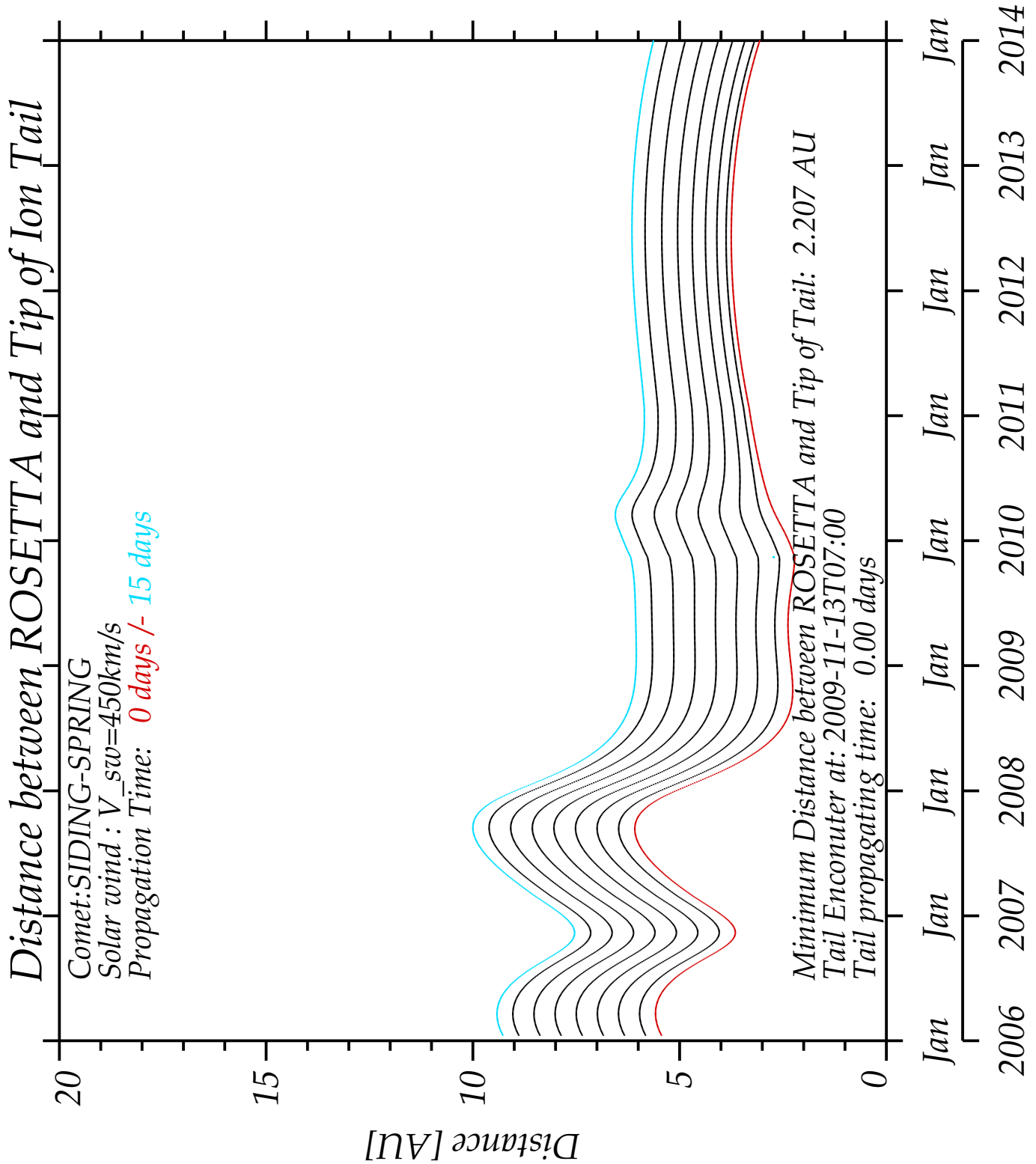


Figure 333: Minimum Distances: ROSETTA - SIDING-SPRING

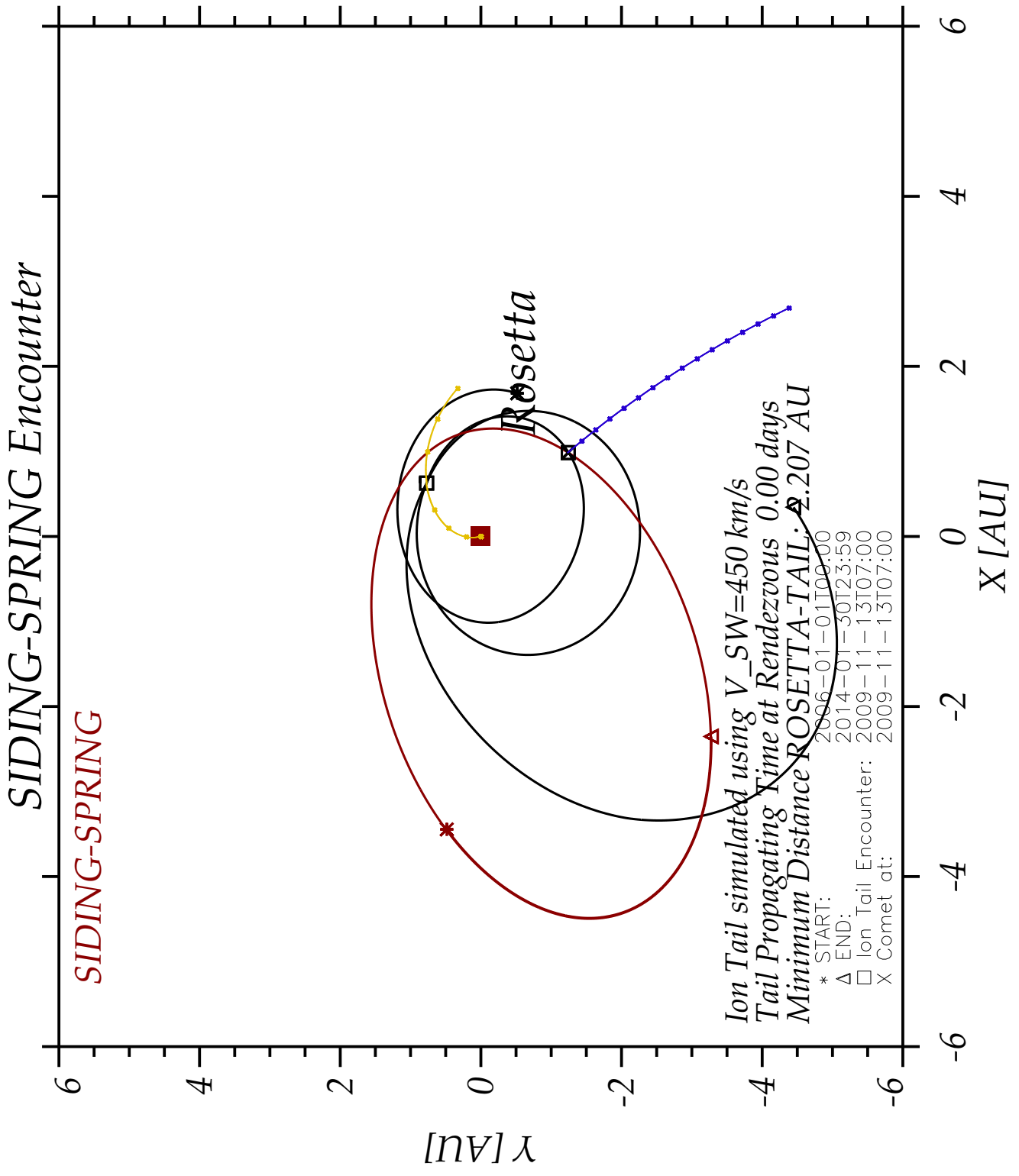


Figure 334: Overview: ROSETTA - SIDING-SPRING

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**170 Comet 163P/NEAT 163**

<b>Comet: 163P/NEAT 163</b>
<b>No Encounter below 0.2000AU</b>



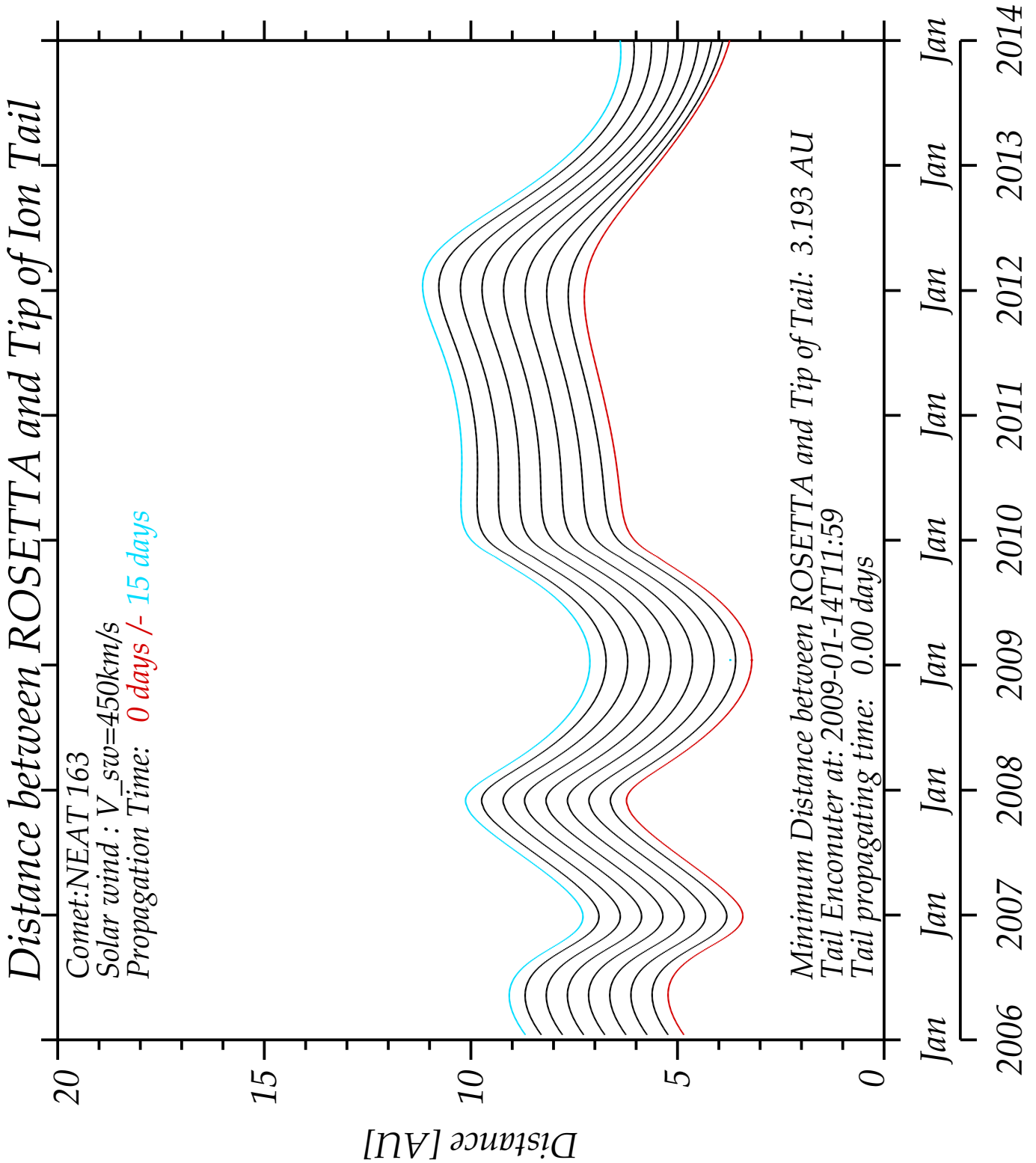


Figure 335: Minimum Distances: ROSETTA - NEAT 163

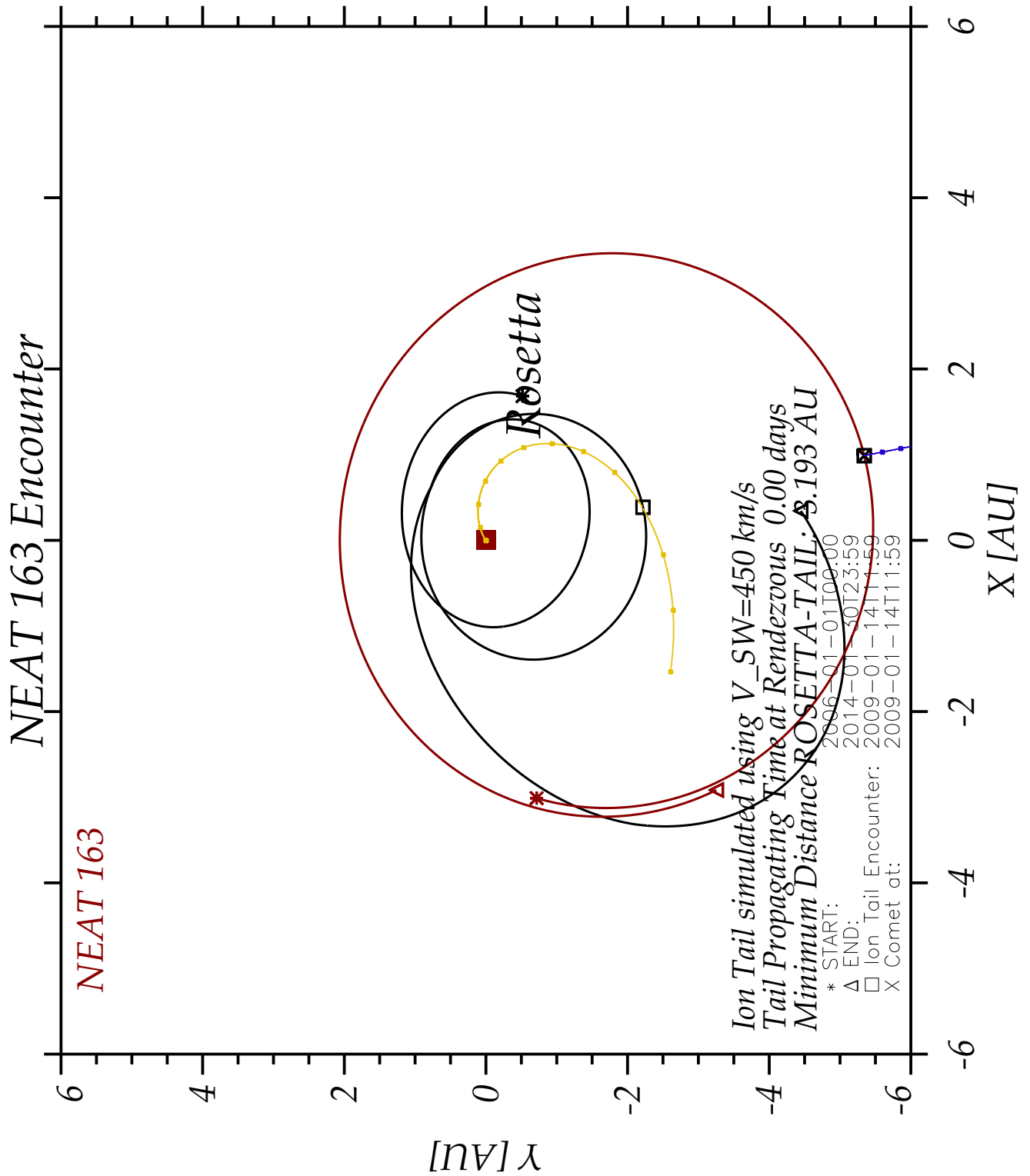


Figure 336: Overview: ROSETTA - NEAT 163

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## **171 Comet 164P/CHRISTENSEN 164**

<b>Comet: 164P/CHRISTENSEN 164</b>
<b>No Encounter below 0.2000AU</b>

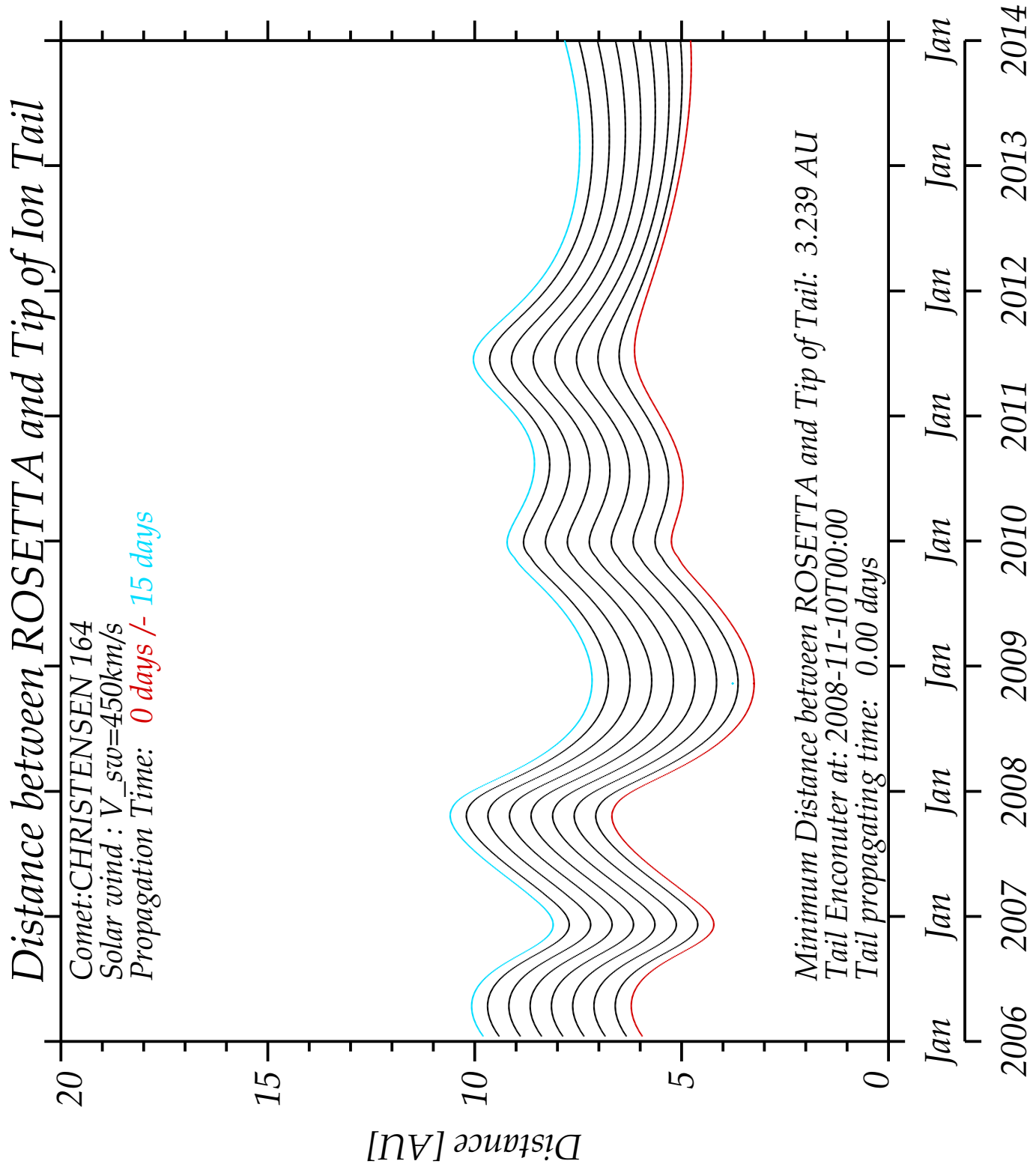


Figure 337: Minimum Distances: ROSETTA - CHRISTENSEN 164

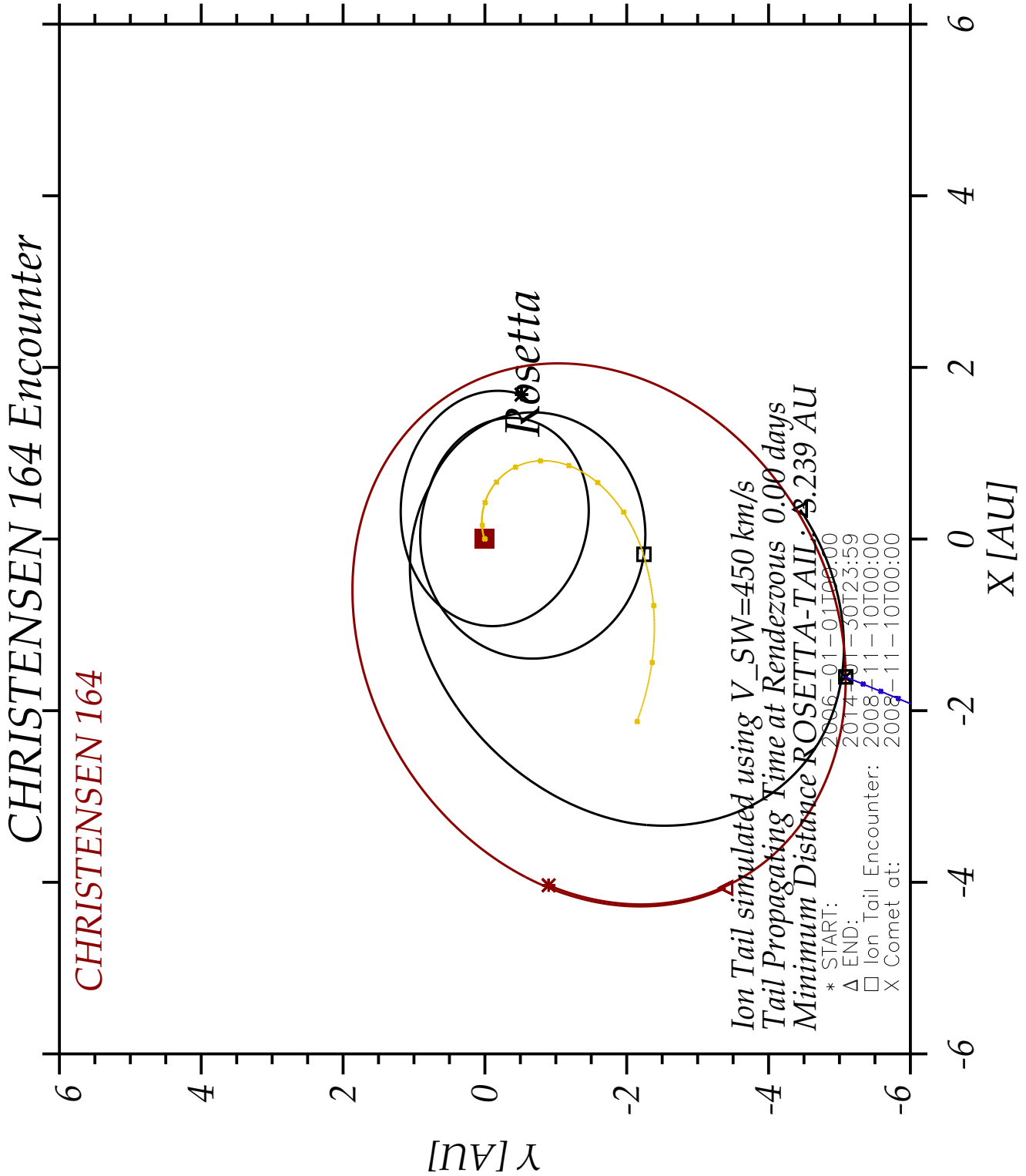


Figure 338: Overview: ROSETTA - CHRISTENSEN 164

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## **172 Comet 165P/LINEAR 165**

<b>Comet: 165P/LINEAR 165</b>
<b>No Encounter below 0.2000AU</b>

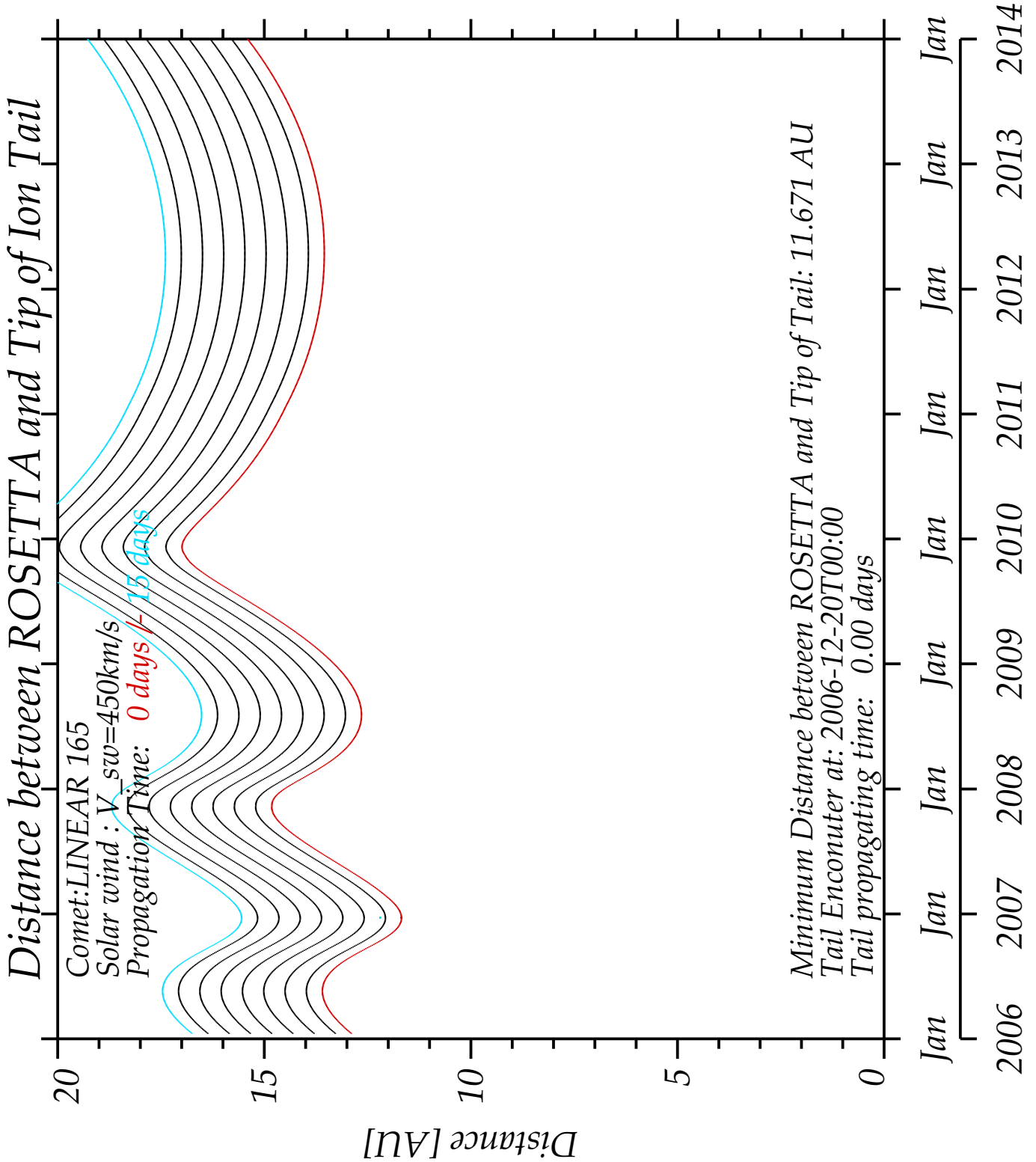


Figure 339: Minimum Distances: ROSETTA - LINEAR 165

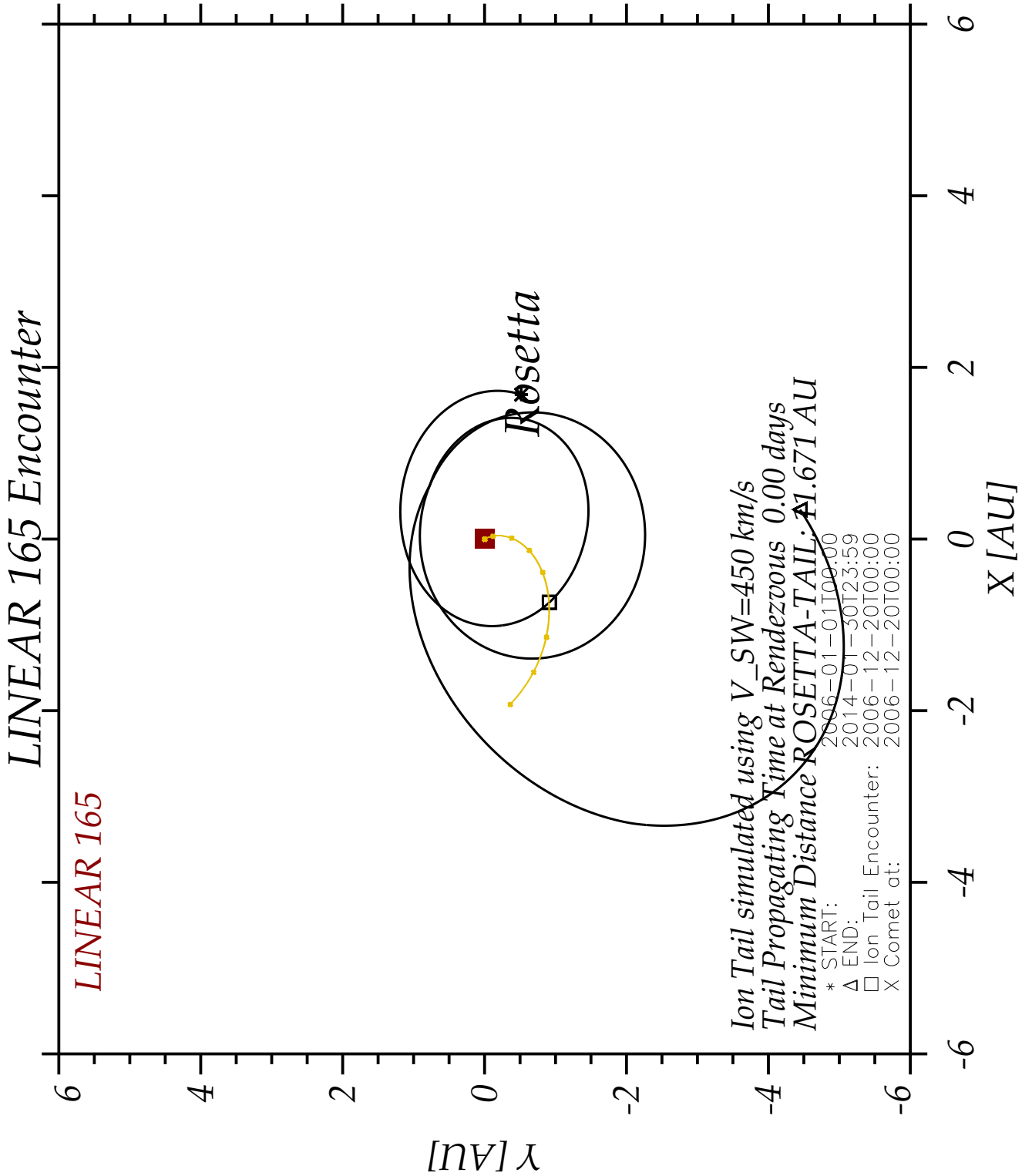


Figure 340: Overview: ROSETTA - LINEAR 165



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## **173 Comet 166P/NEAT 166**

<b>Comet: 166P/NEAT 166</b>
<b>No Encounter below 0.2000AU</b>

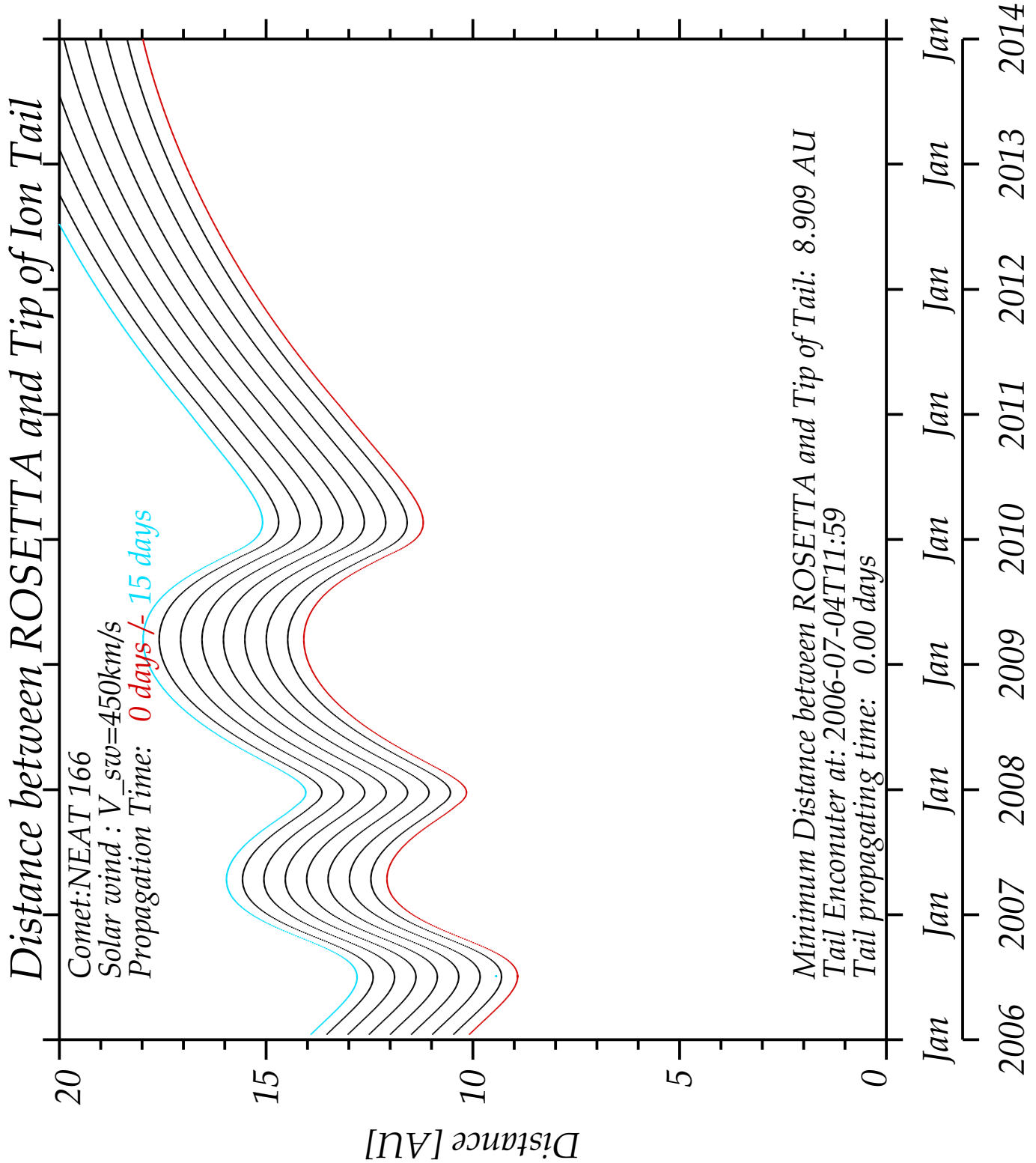


Figure 341: Minimum Distances: ROSETTA - NEAT 166

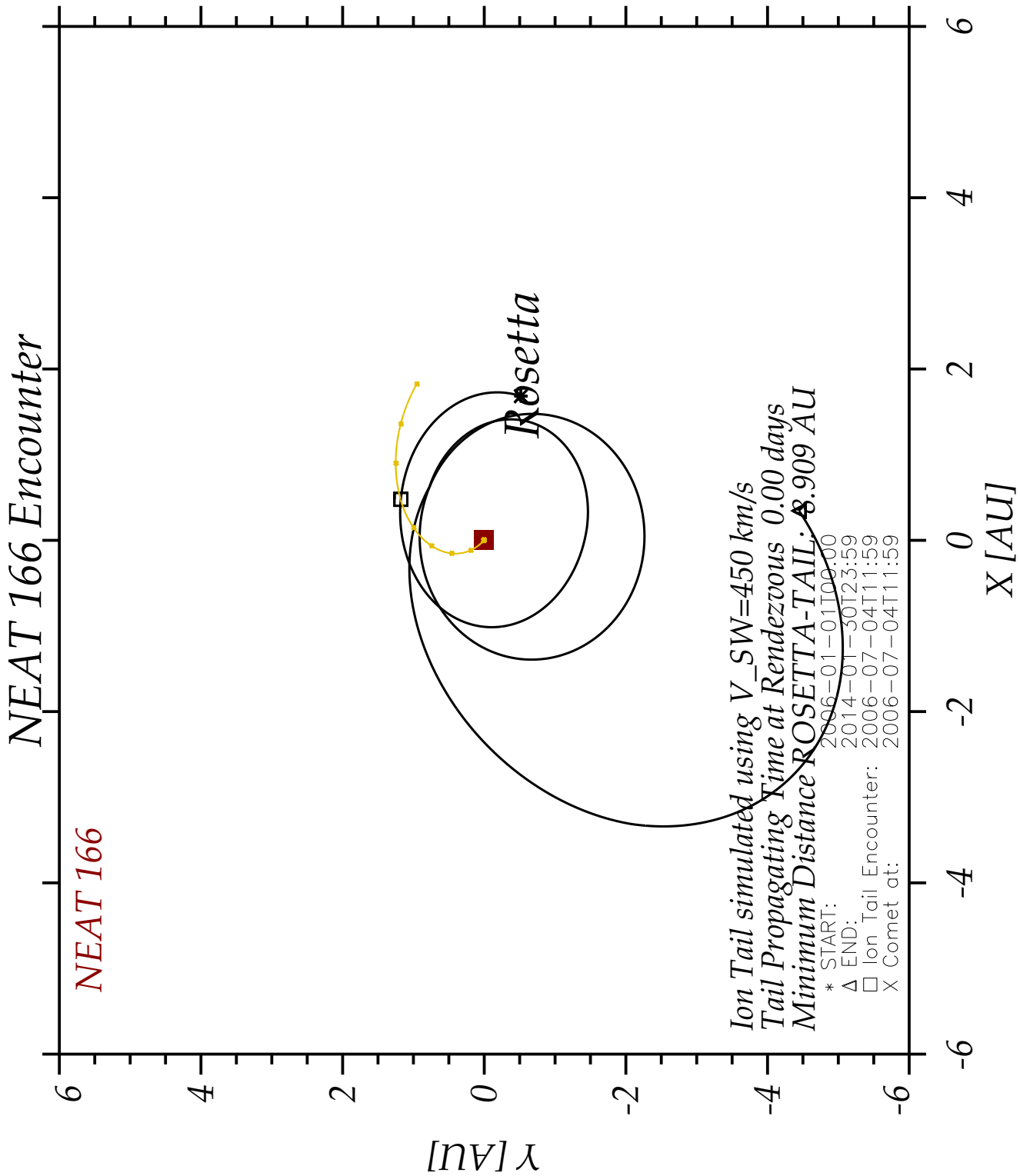


Figure 342: Overview: ROSETTA - NEAT 166

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## 174 Comet 167P/CINEOS

<b>Comet: 167P/CINEOS</b>
<b>No Encounter below 0.2000AU</b>

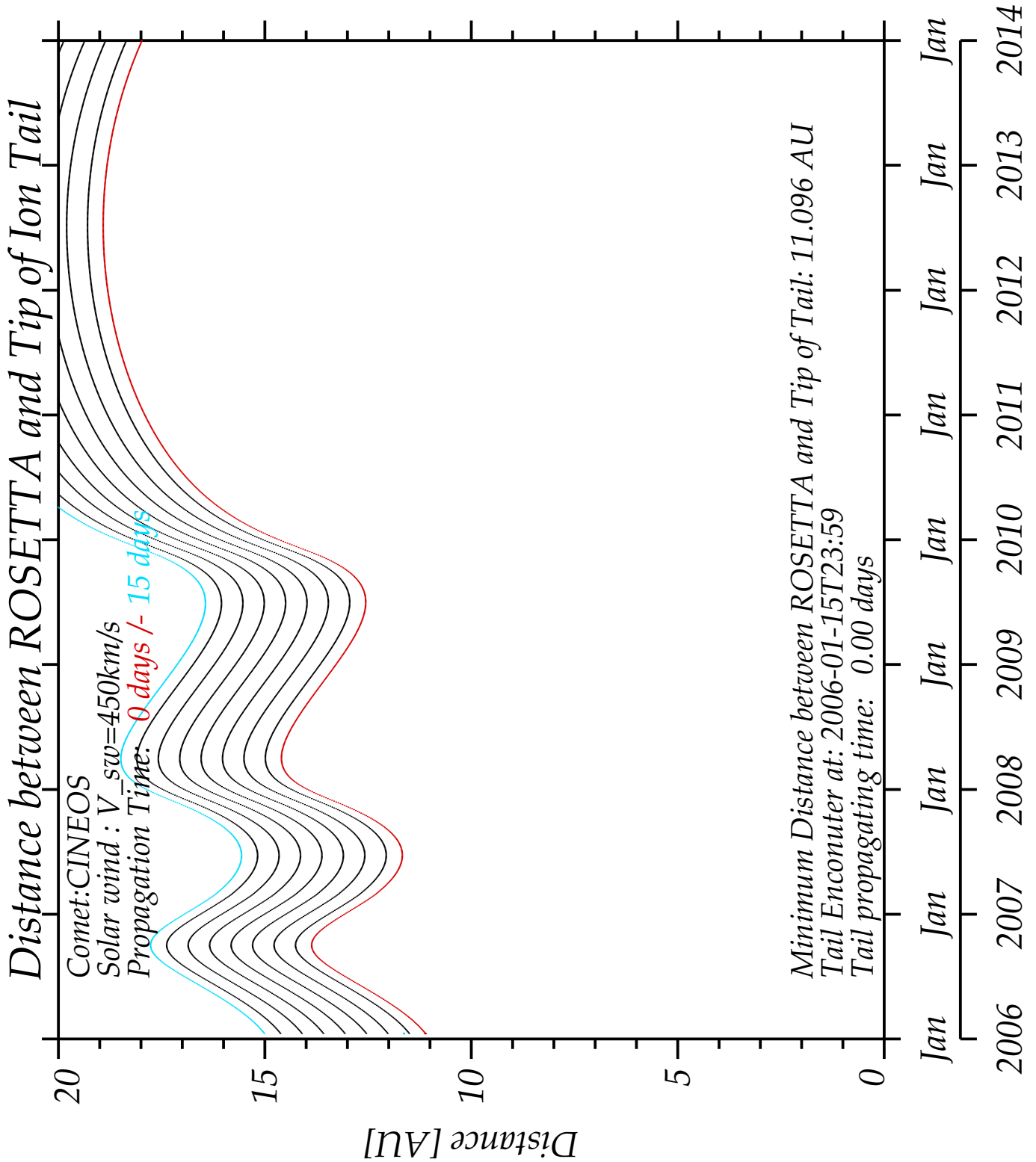


Figure 343: Minimum Distances: ROSETTA - CINEOS

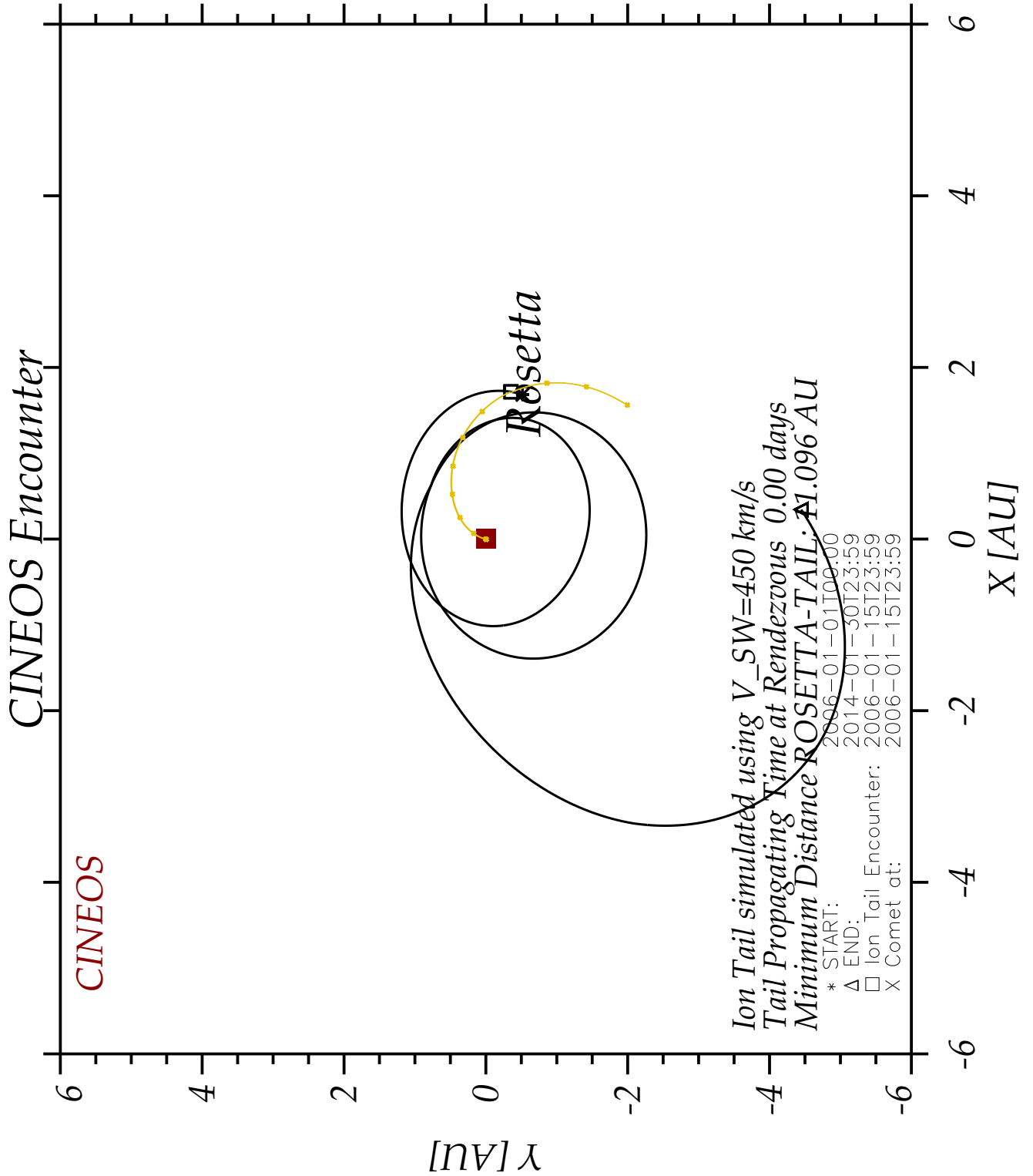


Figure 344: Overview: ROSETTA - CINEOS

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## 175 Comet 168P/HERGENROTHER 168

<b>Comet: 168P/HERGENROTHER 168</b>
<b>No Encounter below 0.2000AU</b>

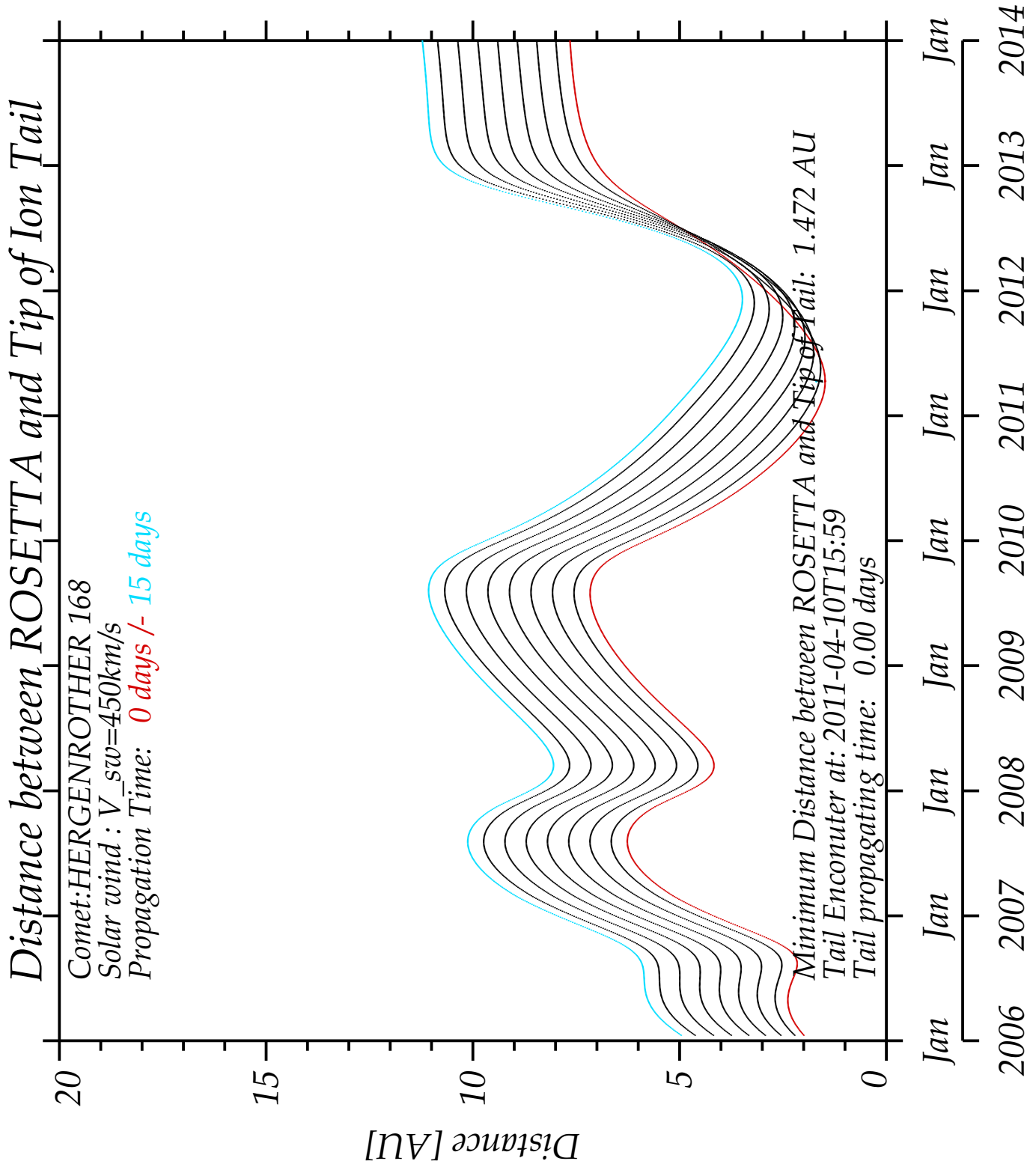


Figure 345: Minimum Distances: ROSETTA - HERGENROTHER 168



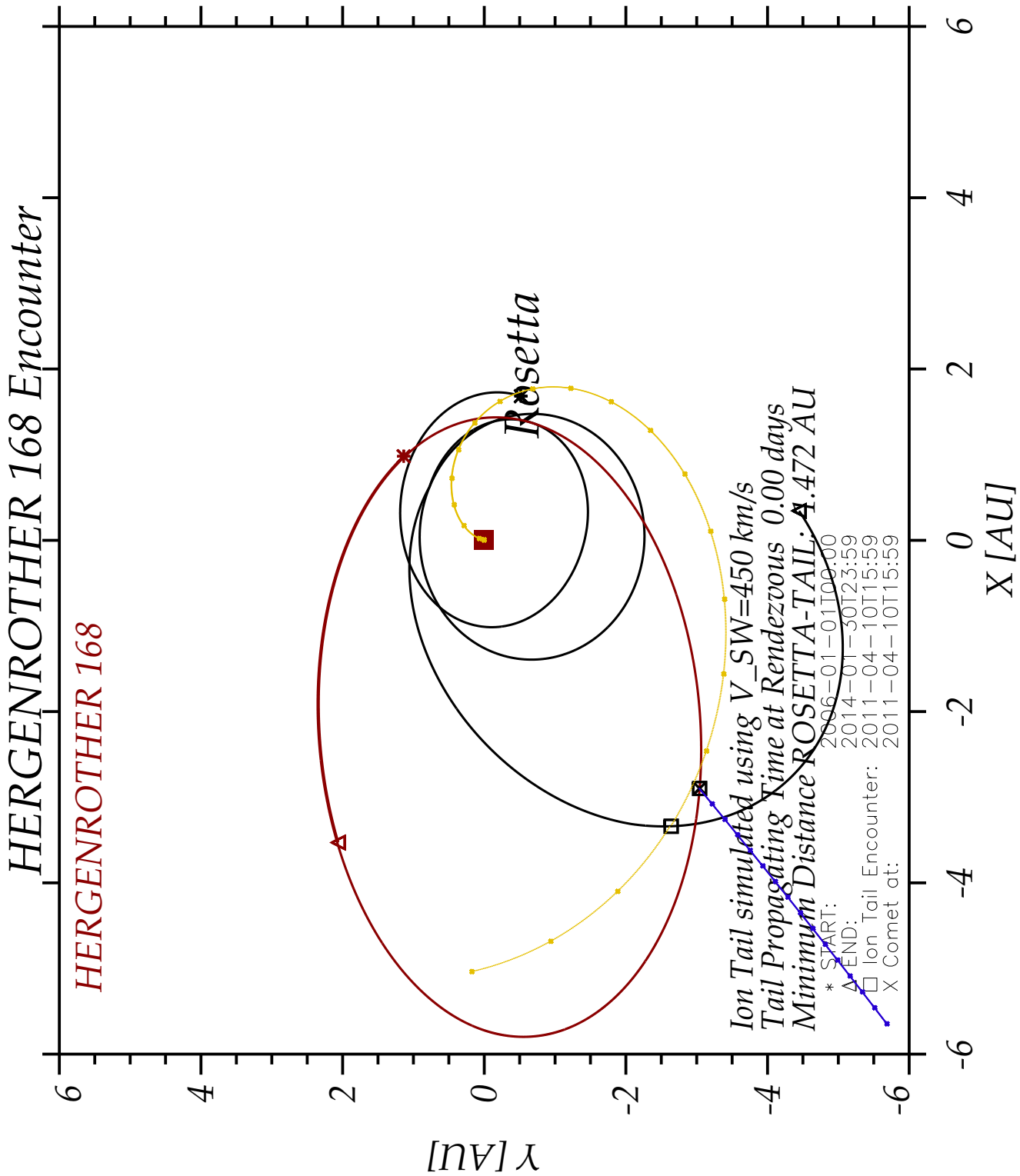


Figure 346: Overview: ROSETTA - HERGENROTHER 168

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## **176 Comet 169P/NEAT 169**

<b>Comet: 169P/NEAT 169</b>
<b>No Encounter below 0.2000AU</b>

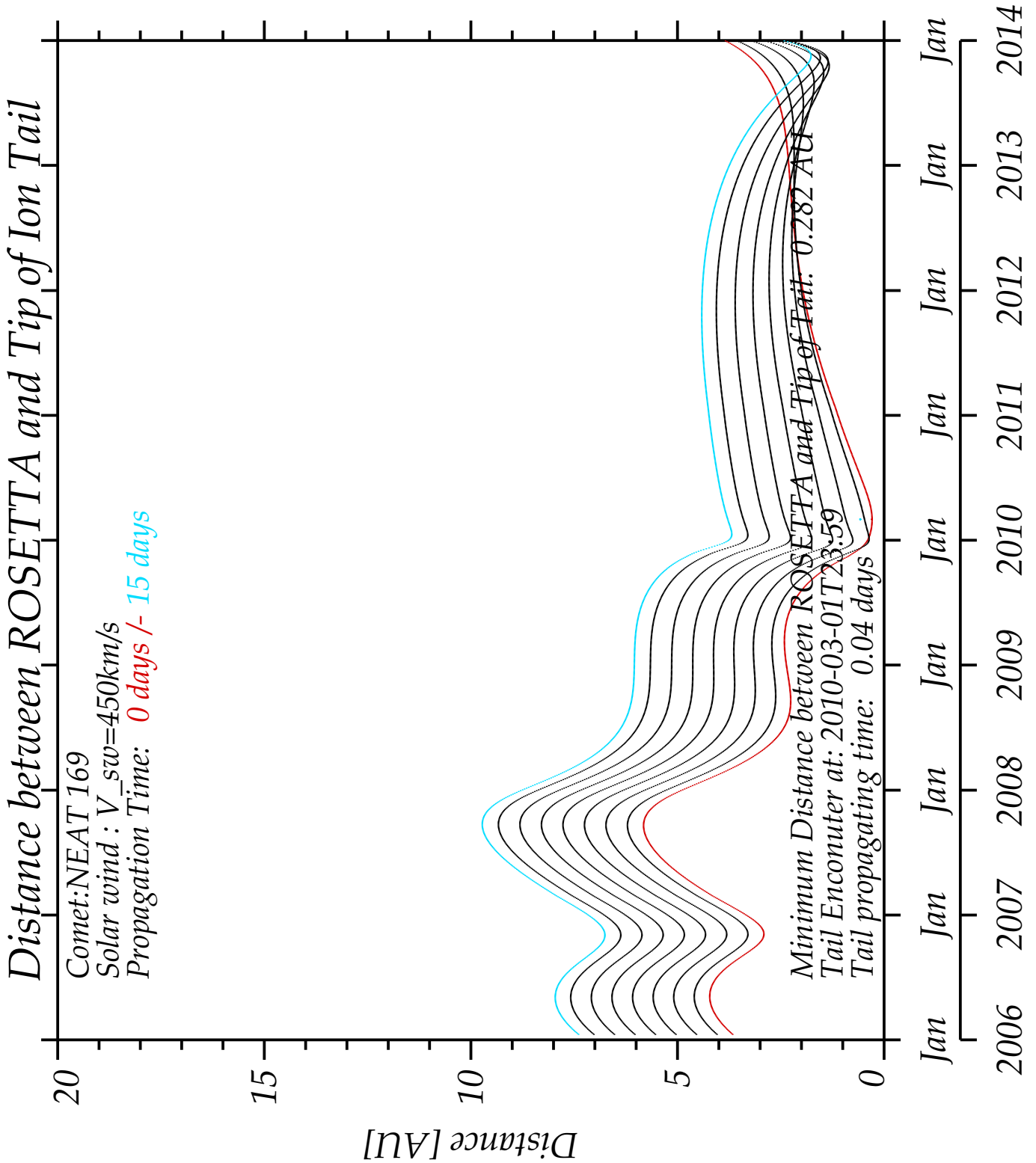


Figure 347: Minimum Distances: ROSETTA - NEAT 169

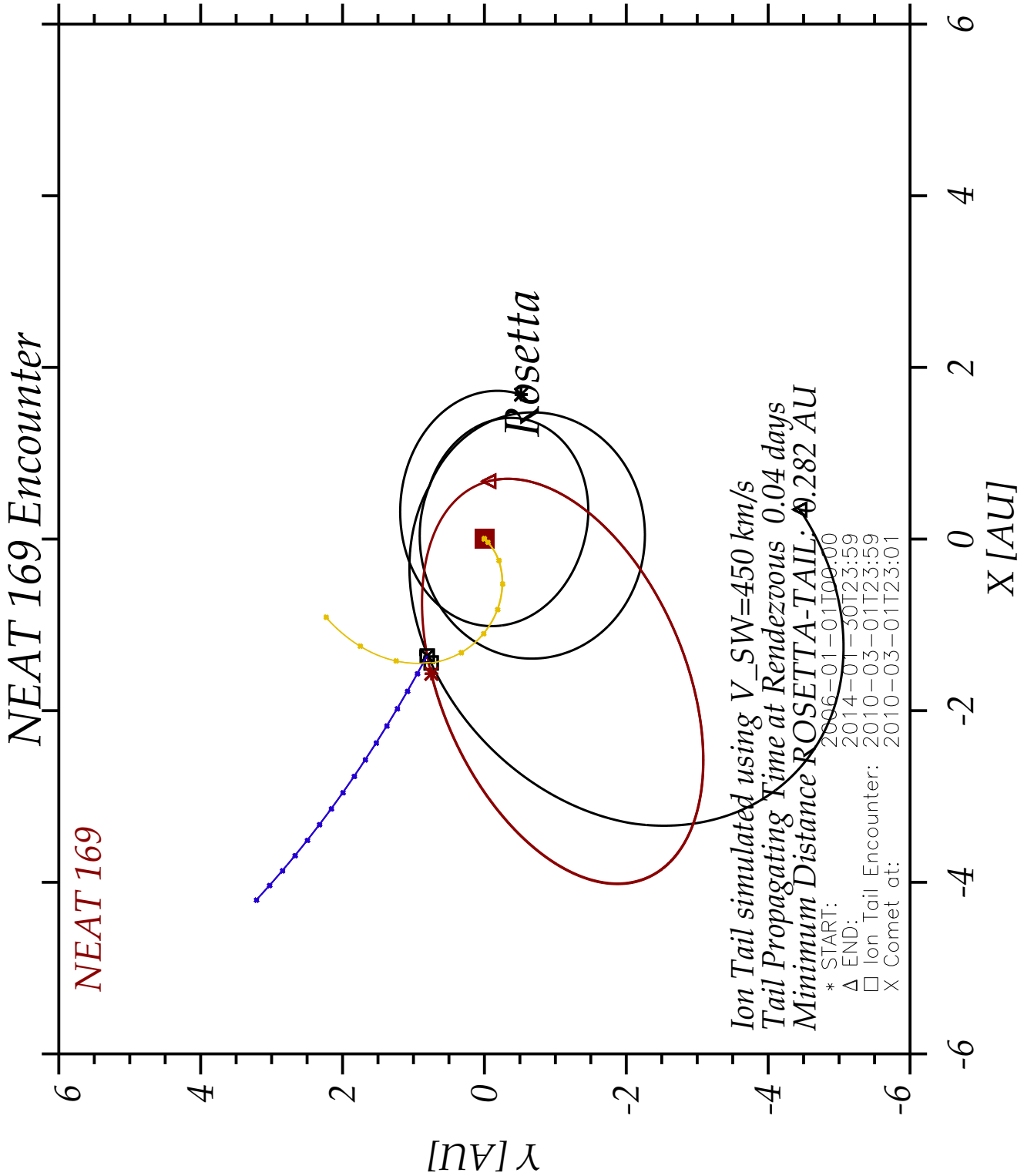


Figure 348: Overview: ROSETTA - NEAT 169

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## 177 Comet 170P/CHRISTENSEN 170

<b>Comet: 170P/CHRISTENSEN 170</b>
<b>No Encounter below 0.2000AU</b>

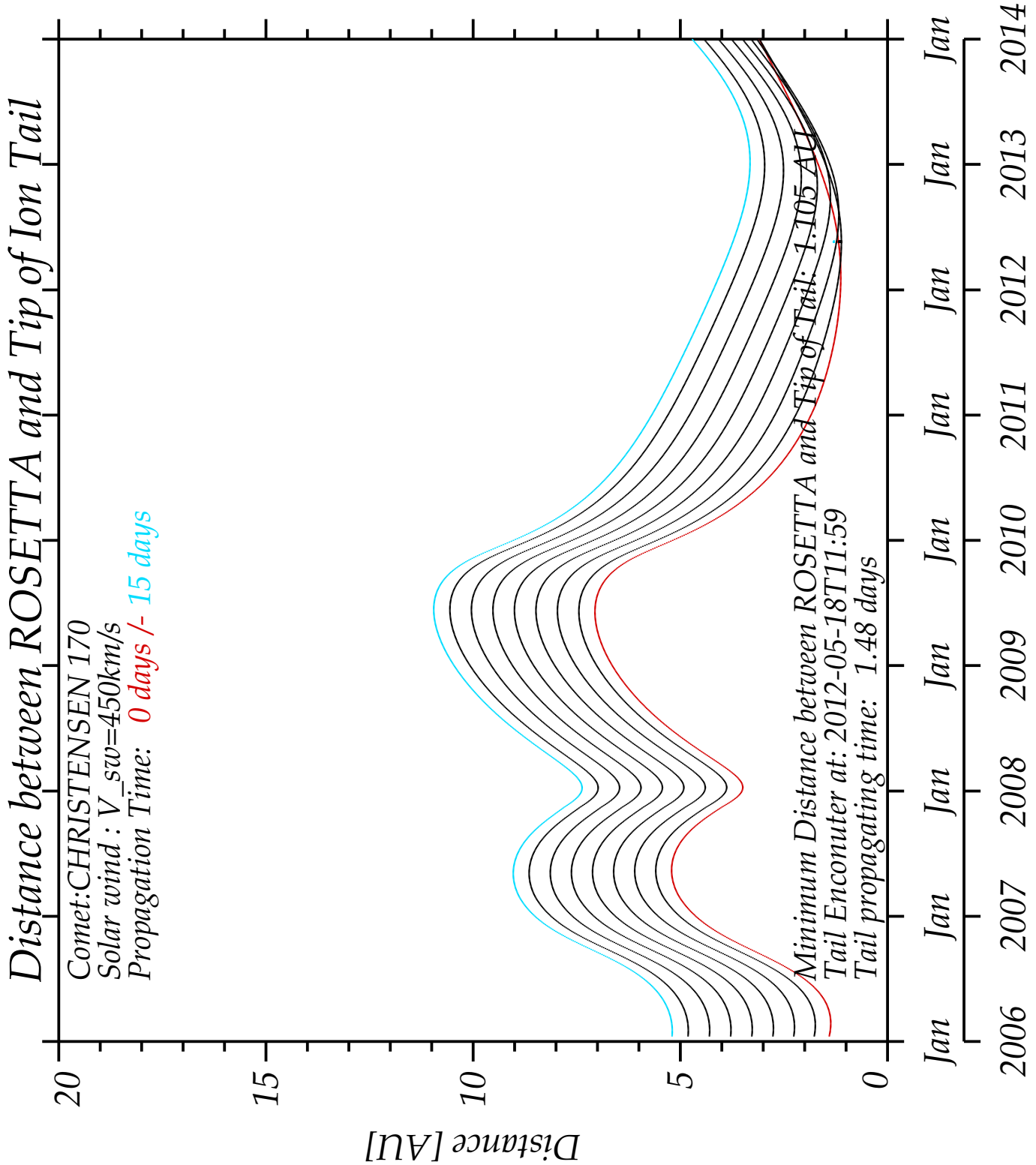


Figure 349: Minimum Distances: ROSETTA - CHRISTENSEN 170

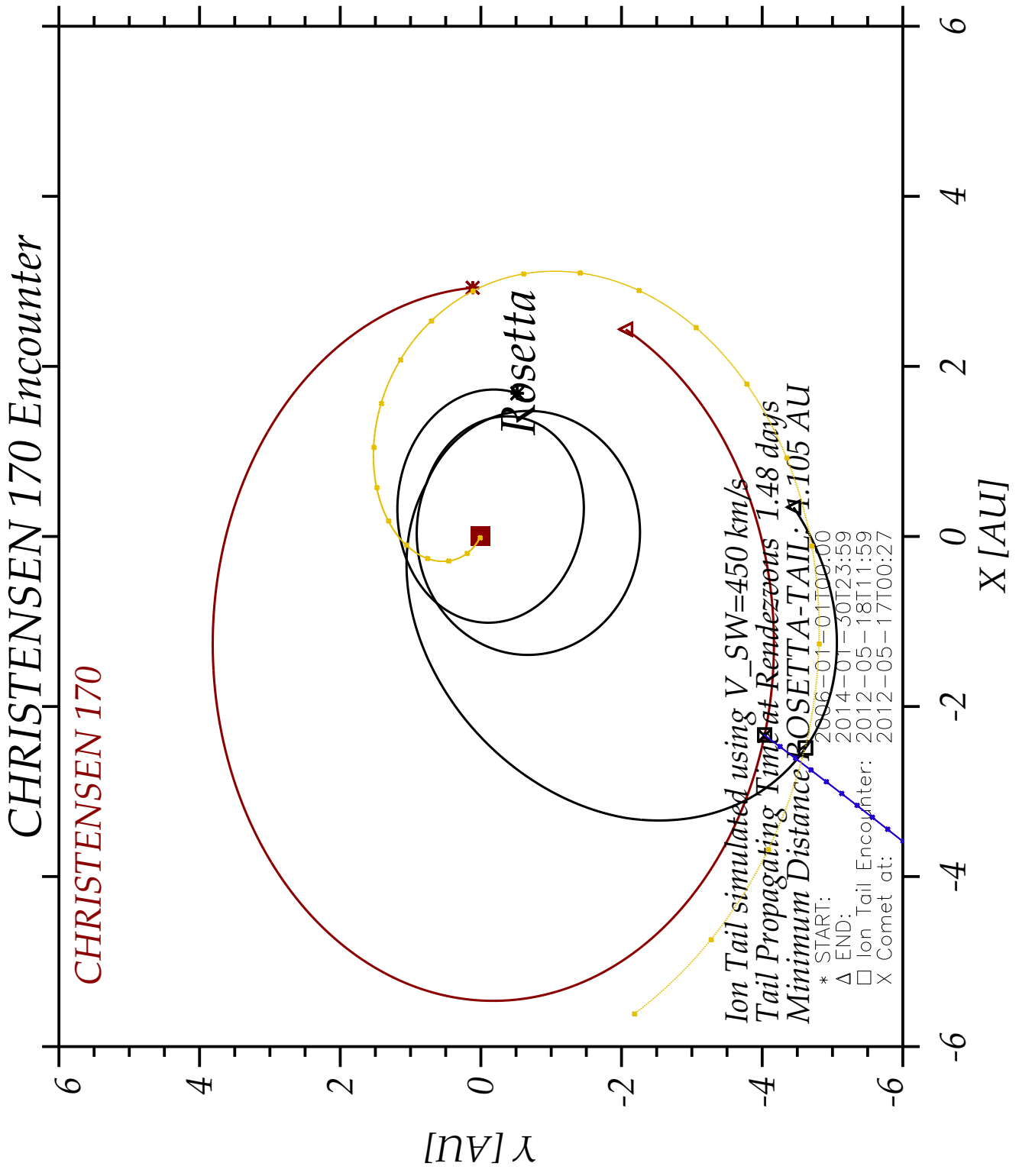


Figure 350: Overview: ROSETTA - CHRISTENSEN 170

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**178 Comet 171P/SPAHR**

<b>Comet: 171P/SPAHR</b>
<b>No Encounter below 0.2000AU</b>



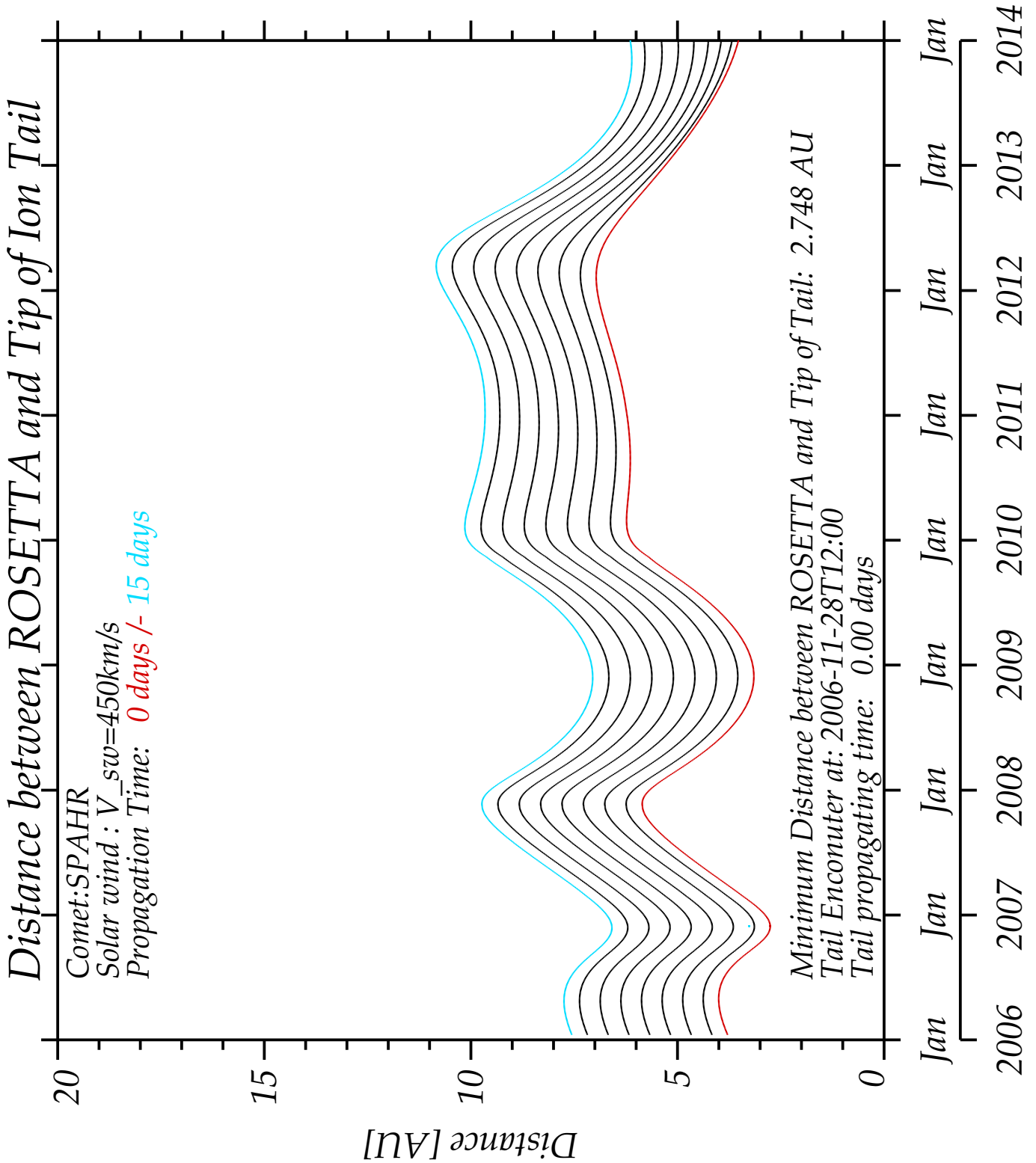


Figure 351: Minimum Distances: ROSETTA - SPAHR

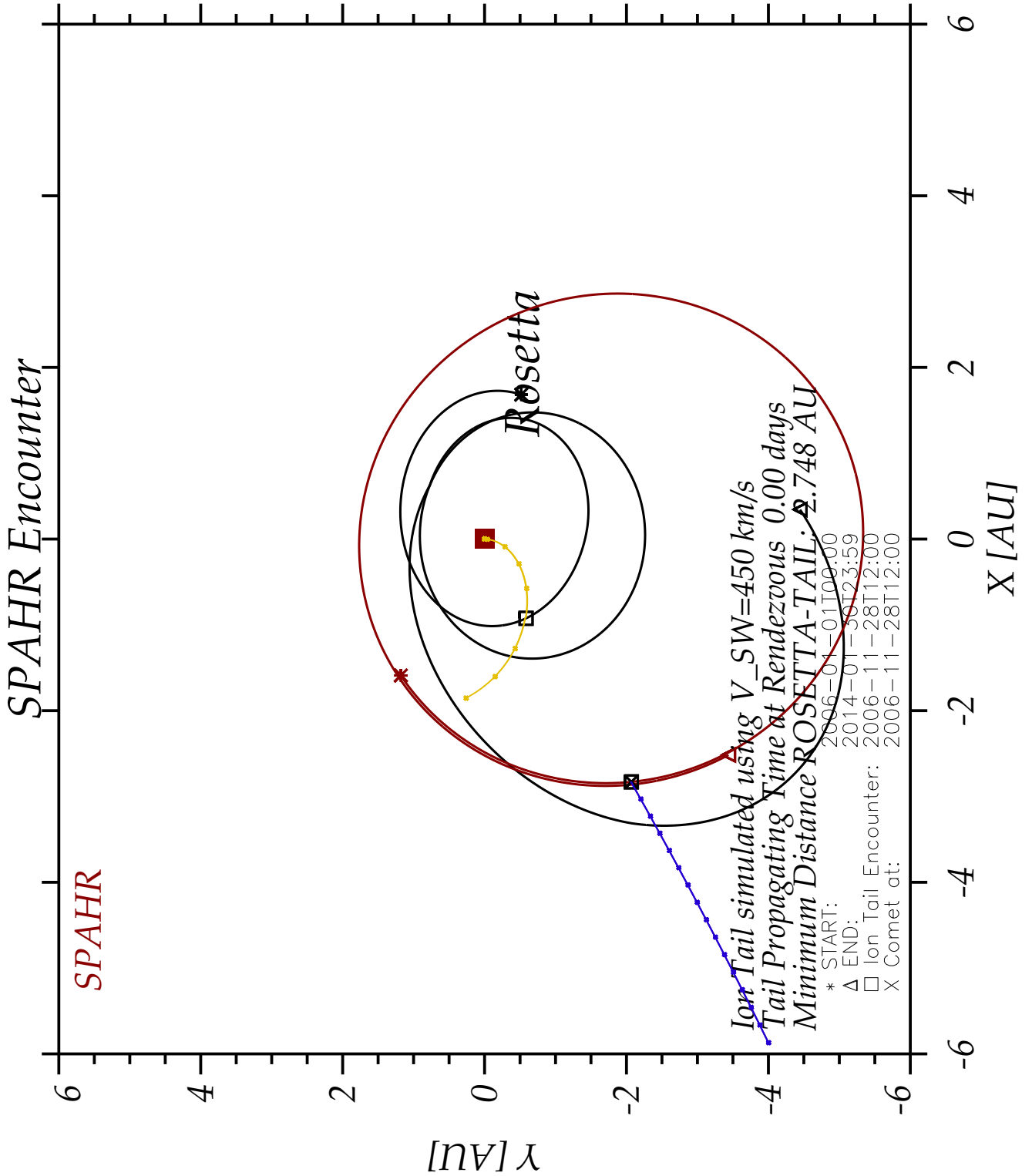


Figure 352: Overview: ROSETTA - SPAHR

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## **179 Comet 172P/YEUNG**

<b>Comet: 172P/YEUNG</b>
<b>No Encounter below 0.2000AU</b>

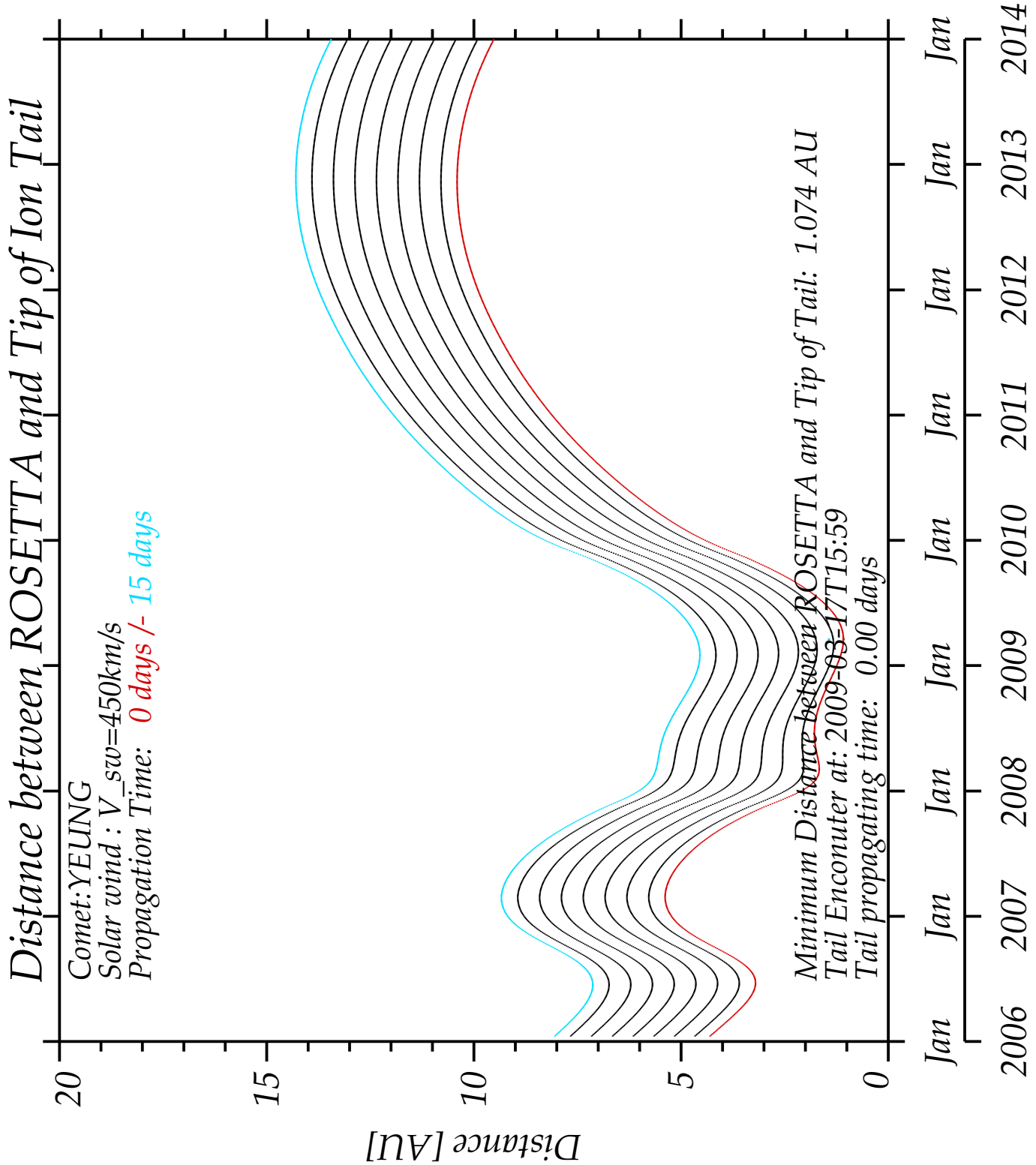


Figure 353: Minimum Distances: ROSETTA - YEUNG

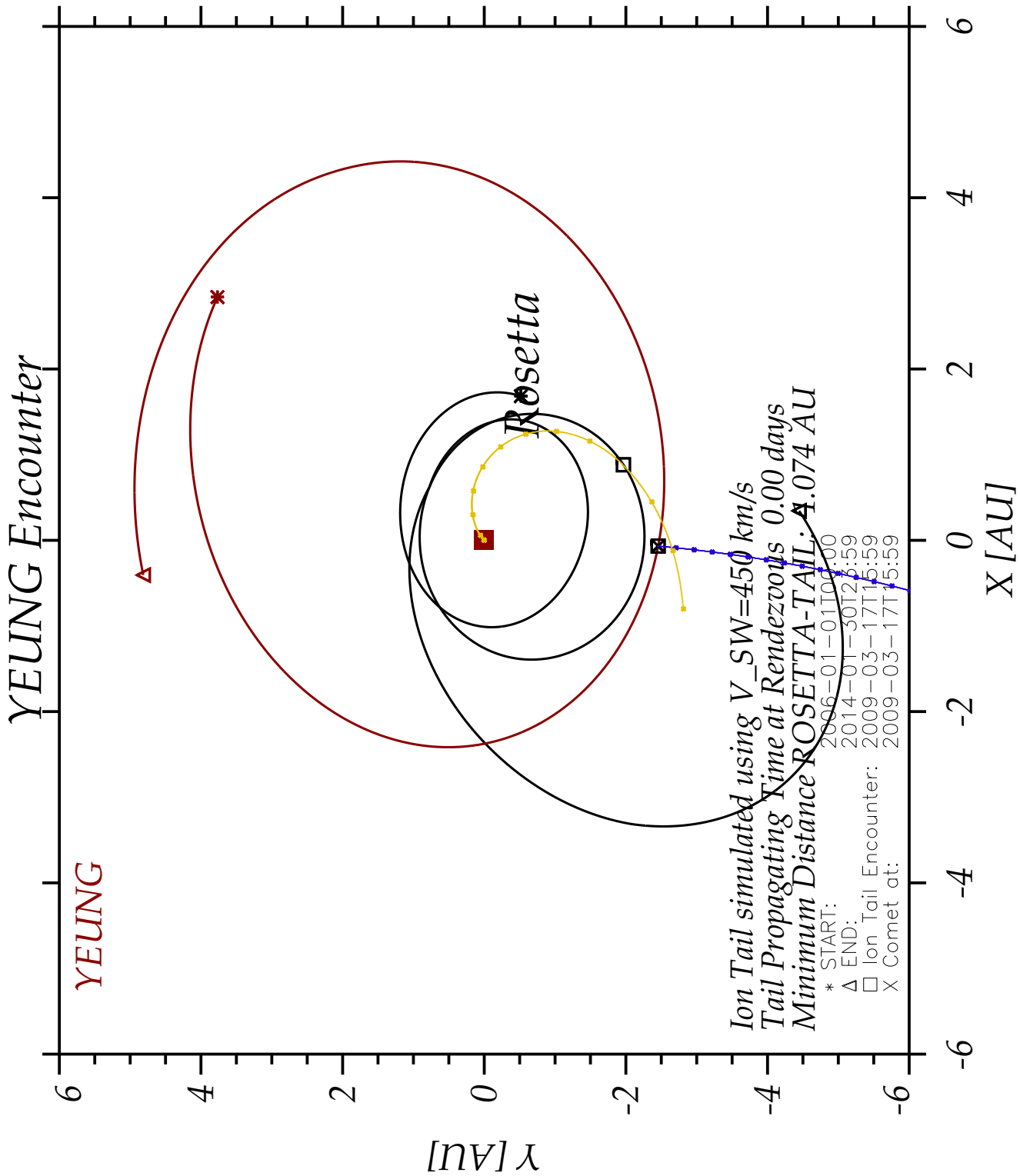


Figure 354: Overview: ROSETTA - YEUNG

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## 180 Comet 173P/MUELLER 5

<b>Comet: 173P/MUELLER 5</b>
<b>No Encounter below 0.2000AU</b>

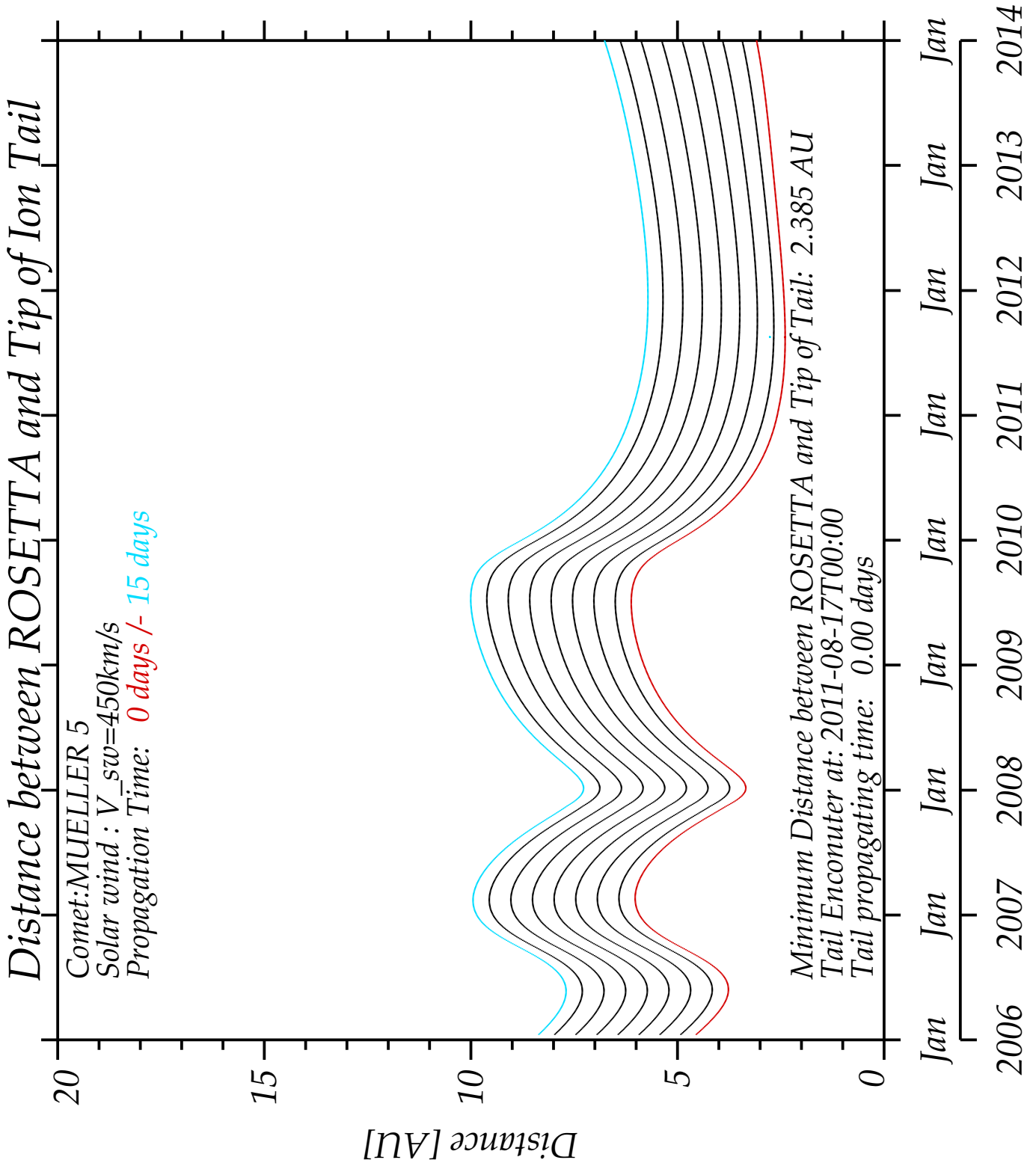


Figure 355: Minimum Distances: ROSETTA - MUELLER 5

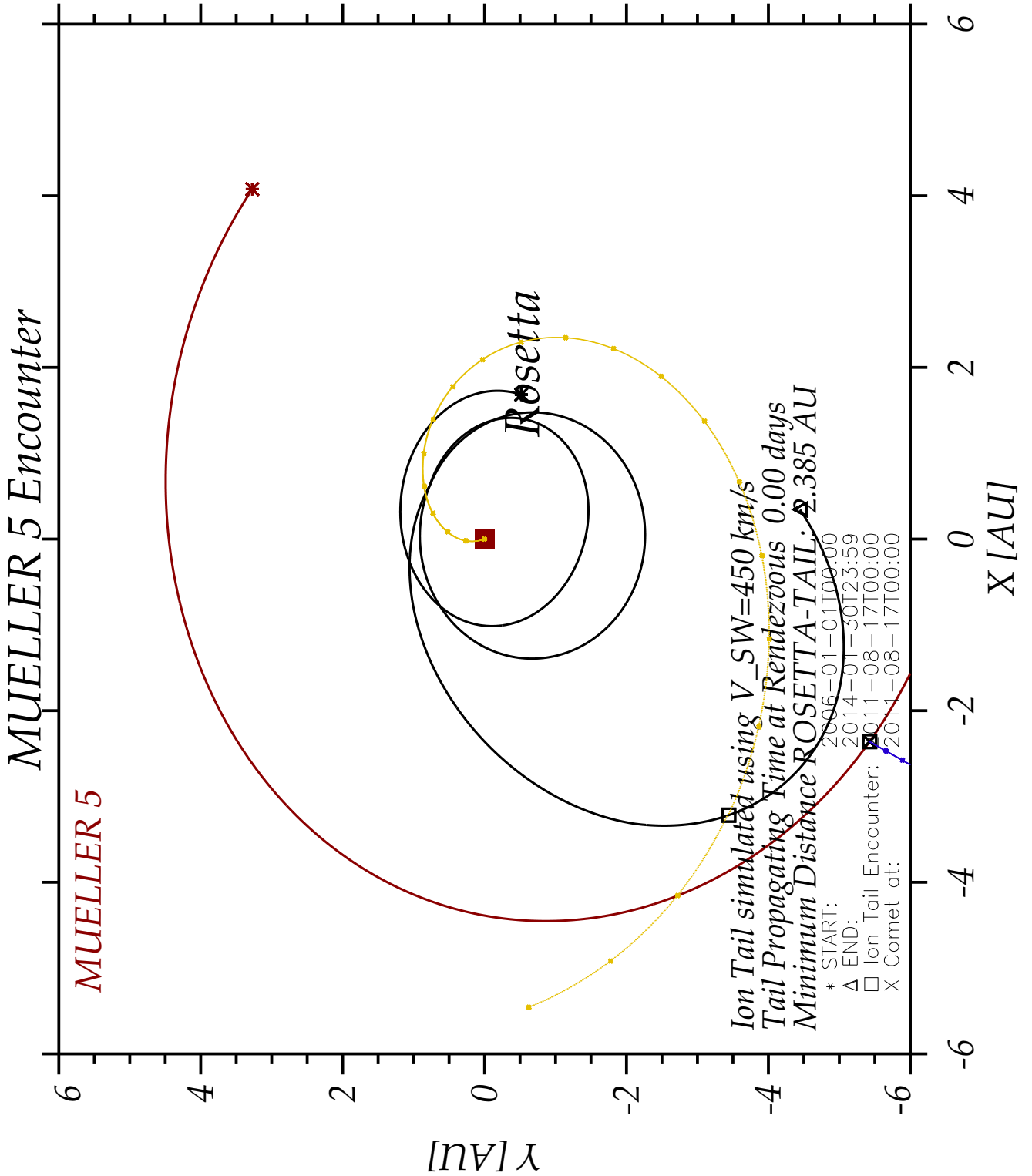


Figure 356: Overview: ROSETTA - MUELLER 5



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## 181 Comet 174P/ECHECLUS

<b>Comet: 174P/ECHECLUS</b>
<b>No Encounter below 0.2000AU</b>

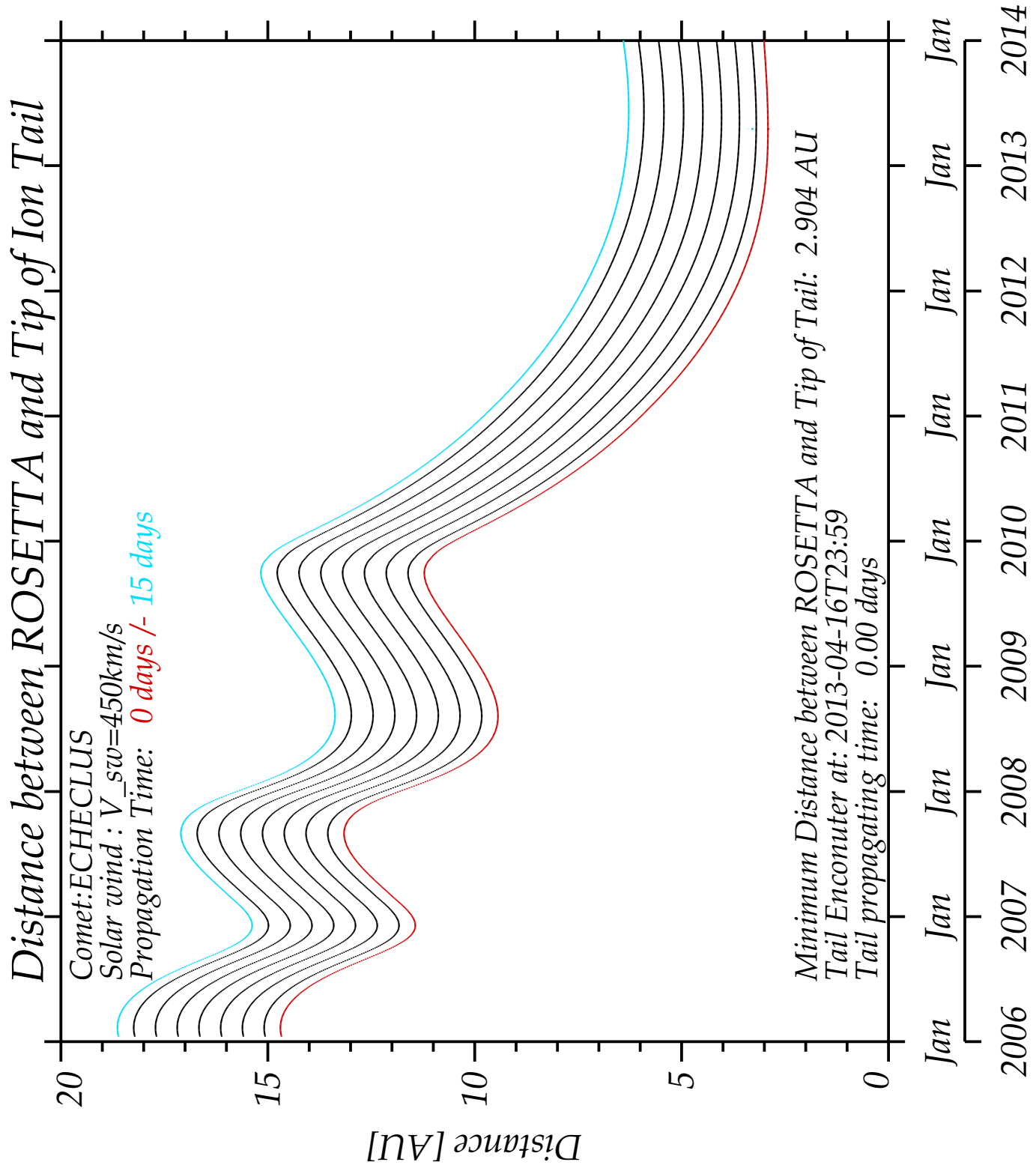


Figure 357: Minimum Distances: ROSETTA - ECHECLUS

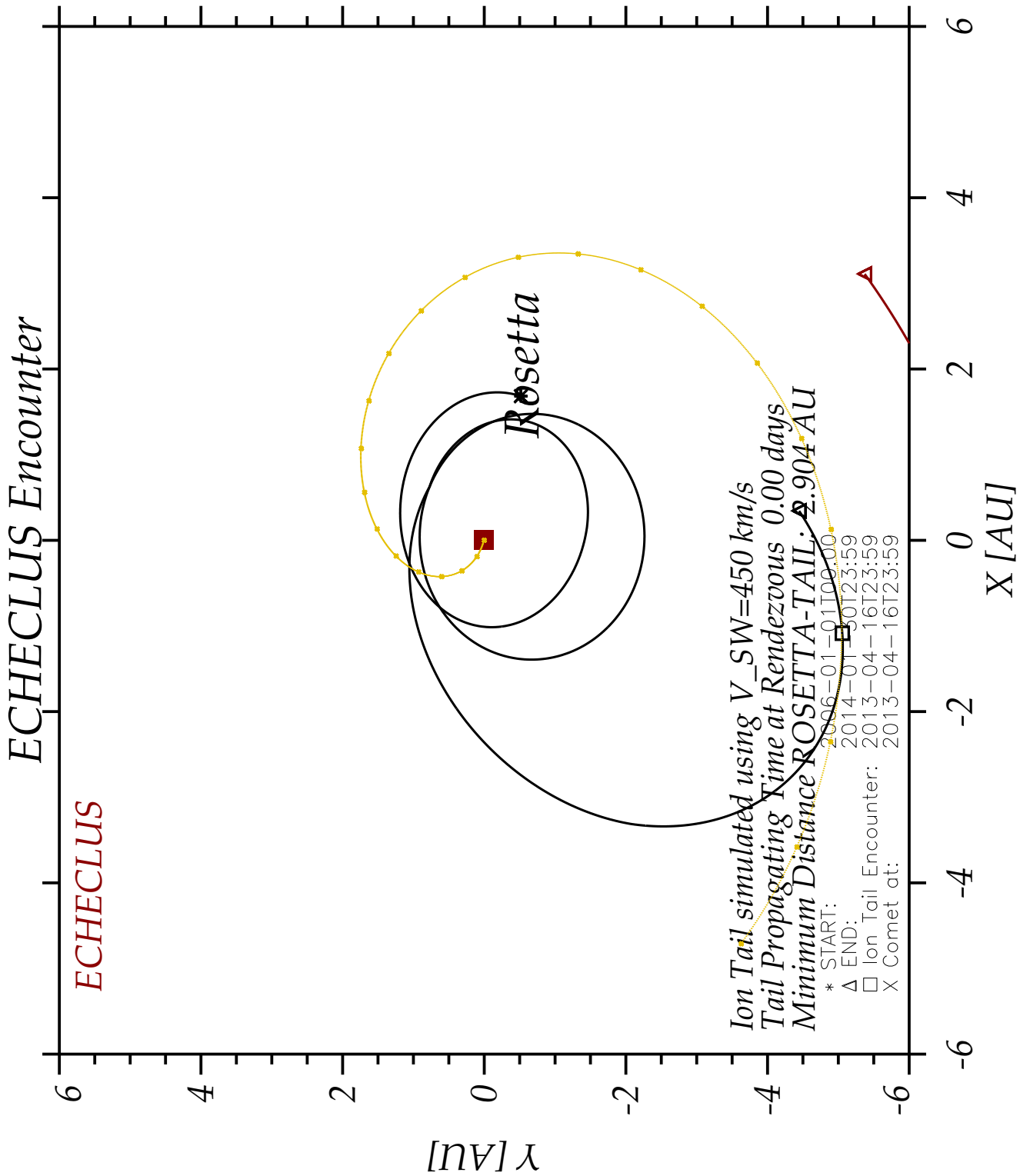


Figure 358: Overview: ROSETTA - ECHECLUS

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## **182 Comet 175P/HERGENROTHER 175**

<b>Comet: 175P/HERGENROTHER 175</b>
<b>No Encounter below 0.2000AU</b>

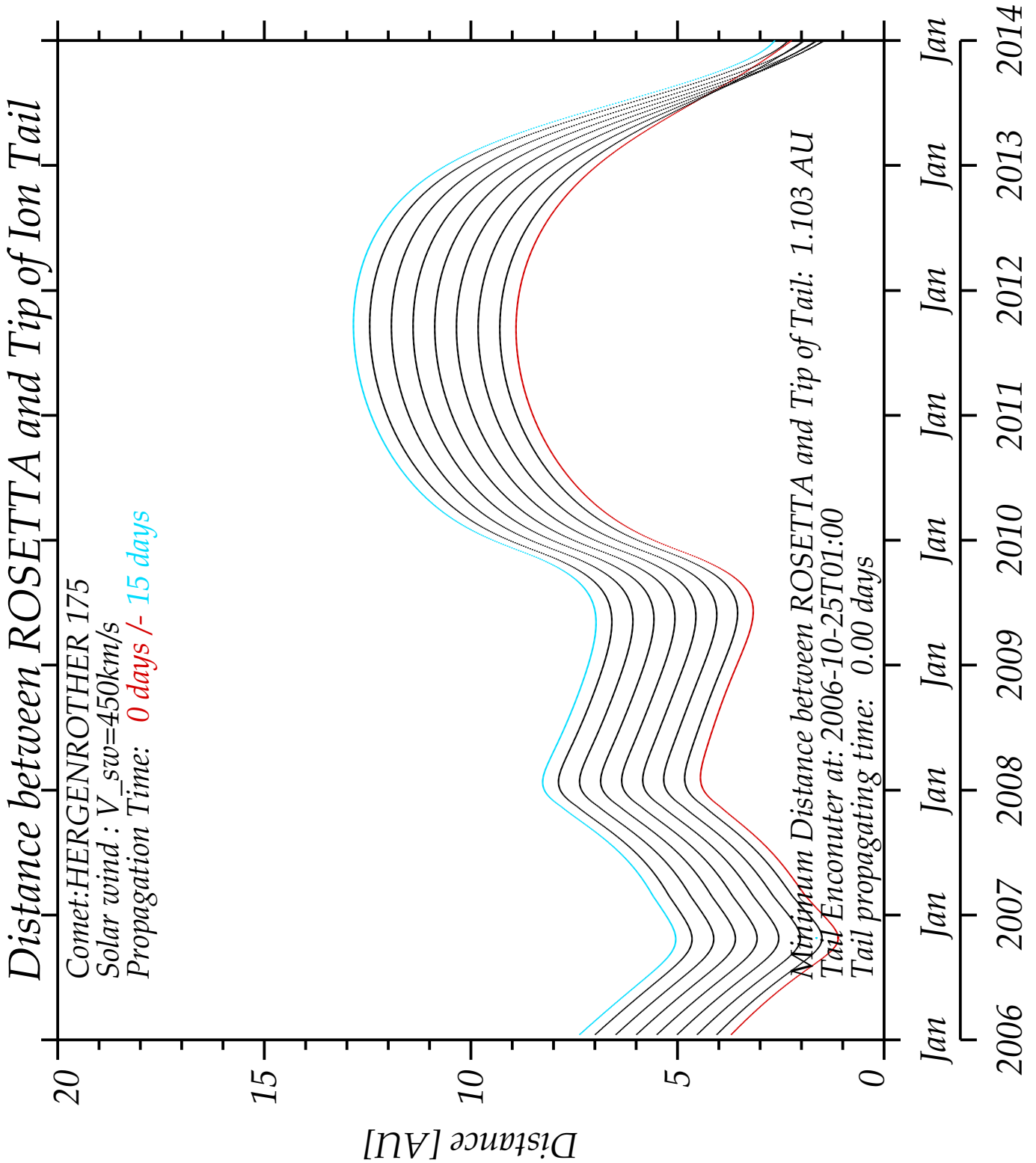


Figure 359: Minimum Distances: ROSETTA - HERGENROTHER 175

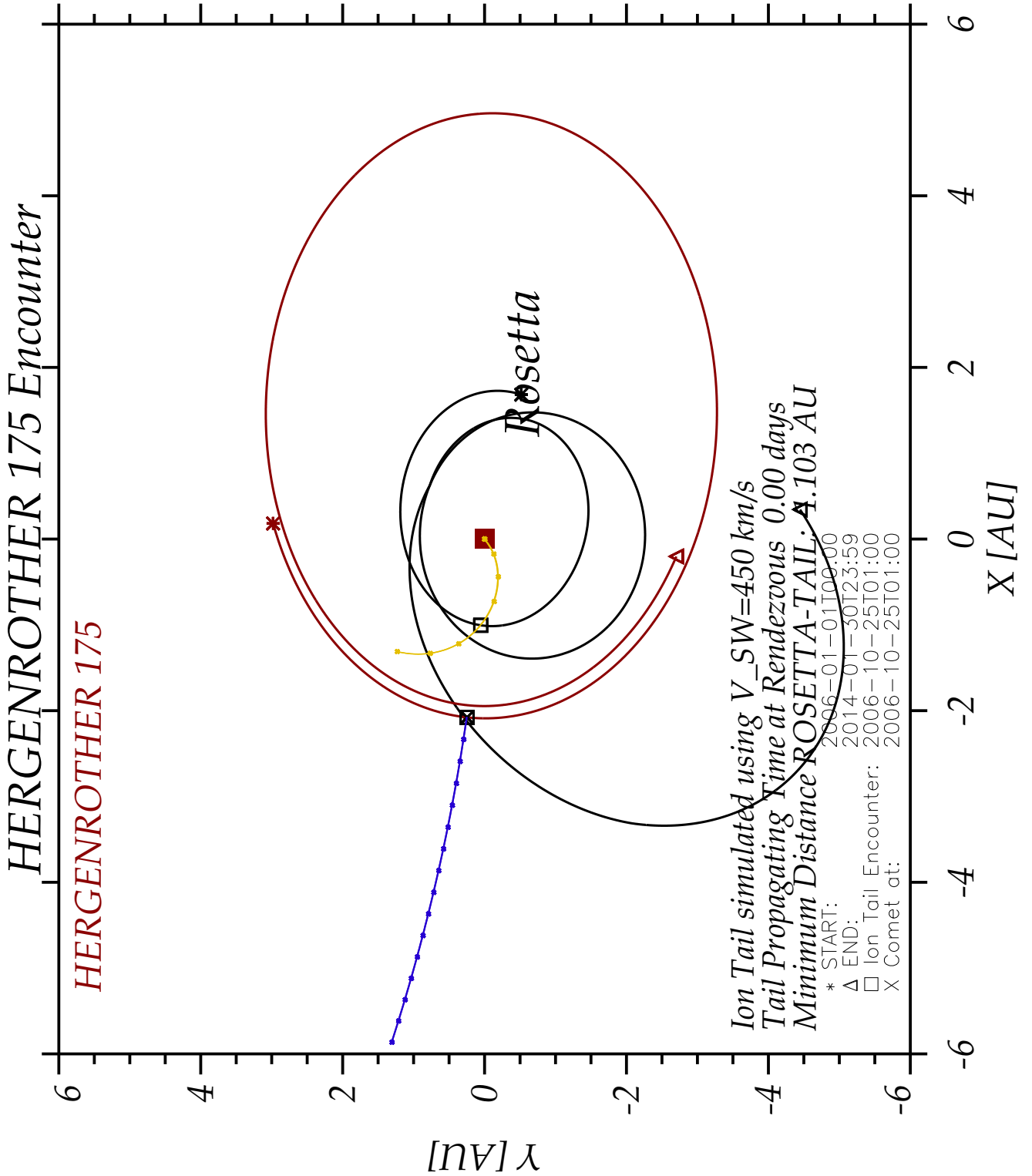


Figure 360: Overview: ROSETTA - HERGENROTHER 175

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## 183 Comet 176P/LINEAR 176

<b>Comet: 176P/LINEAR 176</b>
<b>No Encounter below 0.2000AU</b>

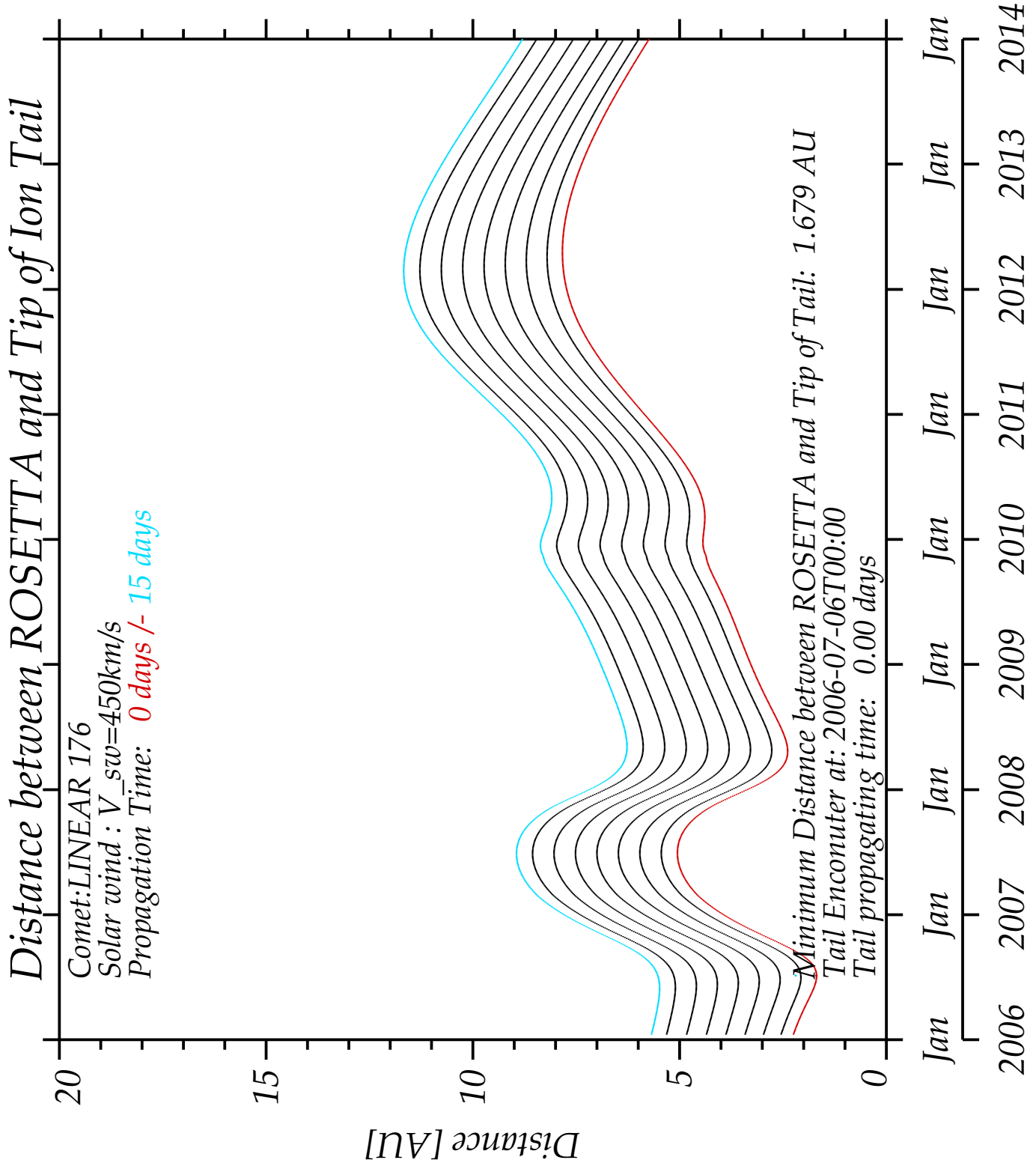


Figure 361: Minimum Distances: ROSETTA - LINEAR 176



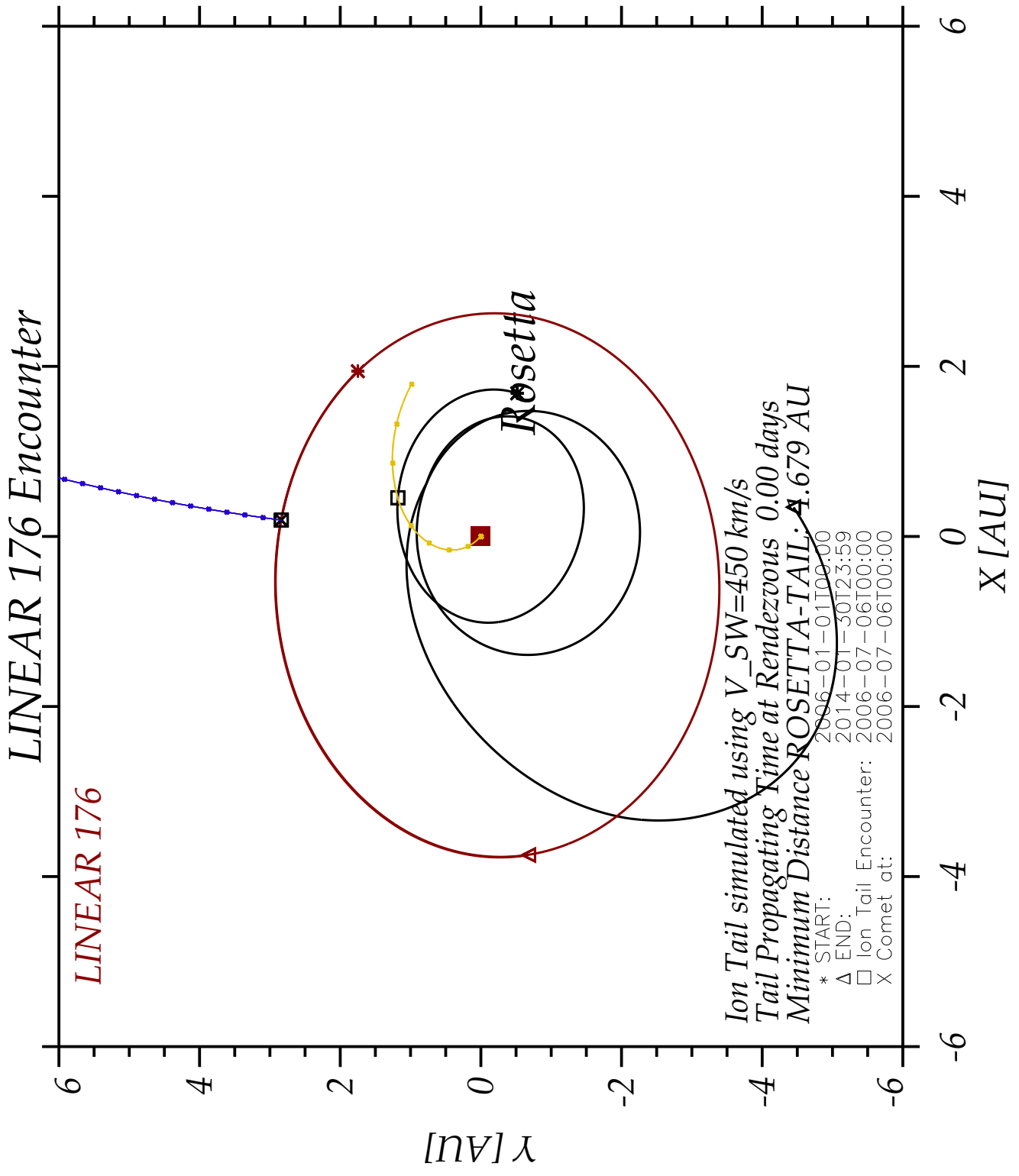


Figure 362: Overview: ROSETTA - LINEAR 176

<b>R O S E T T A</b>	Document: RO-IGEP-TR-0020
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## 184 Comet 177P/BARNARD

<b>Comet: 177P/BARNARD</b>
<b>No Encounter below 0.2000AU</b>

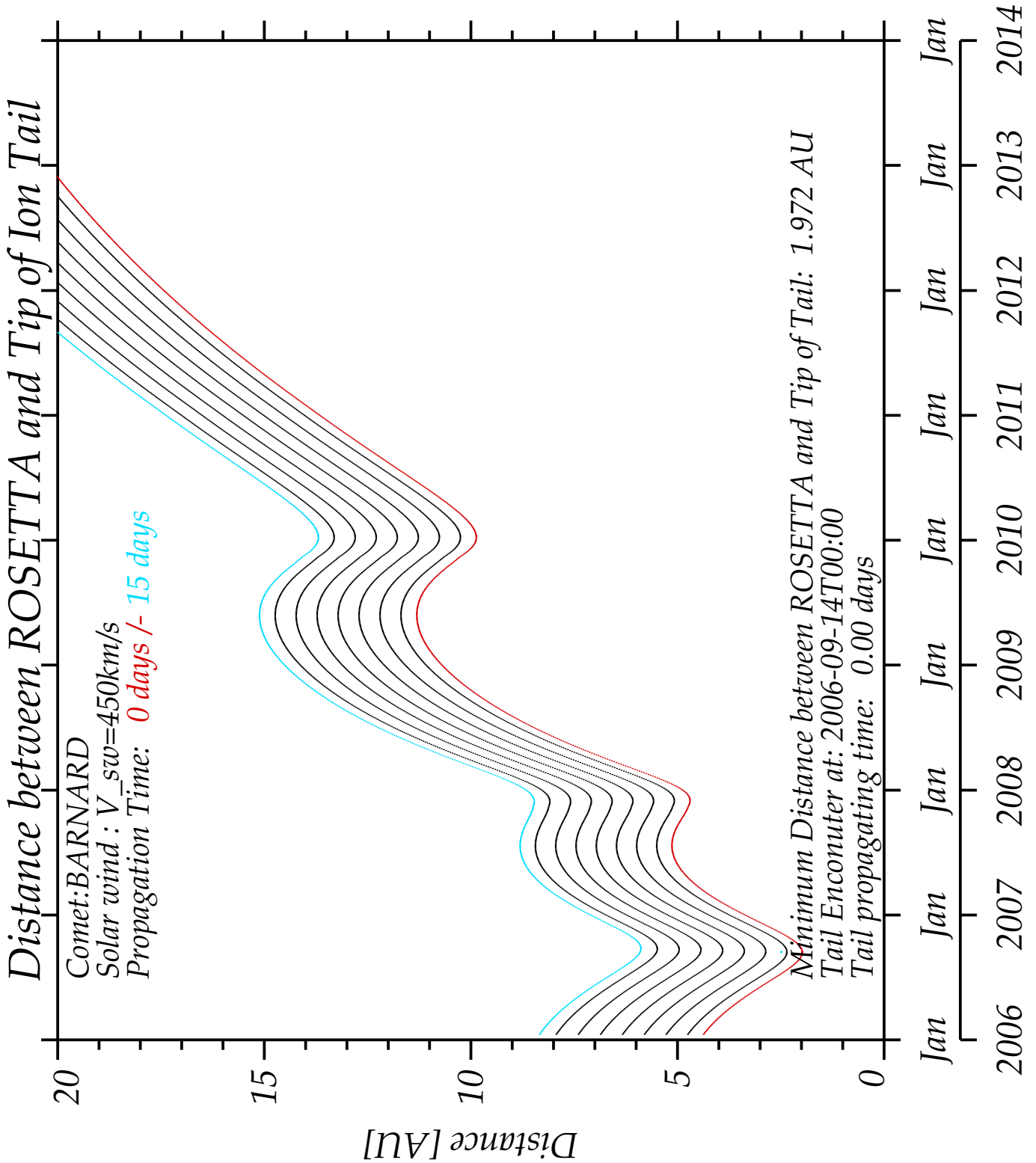


Figure 363: Minimum Distances: ROSETTA - BARNARD

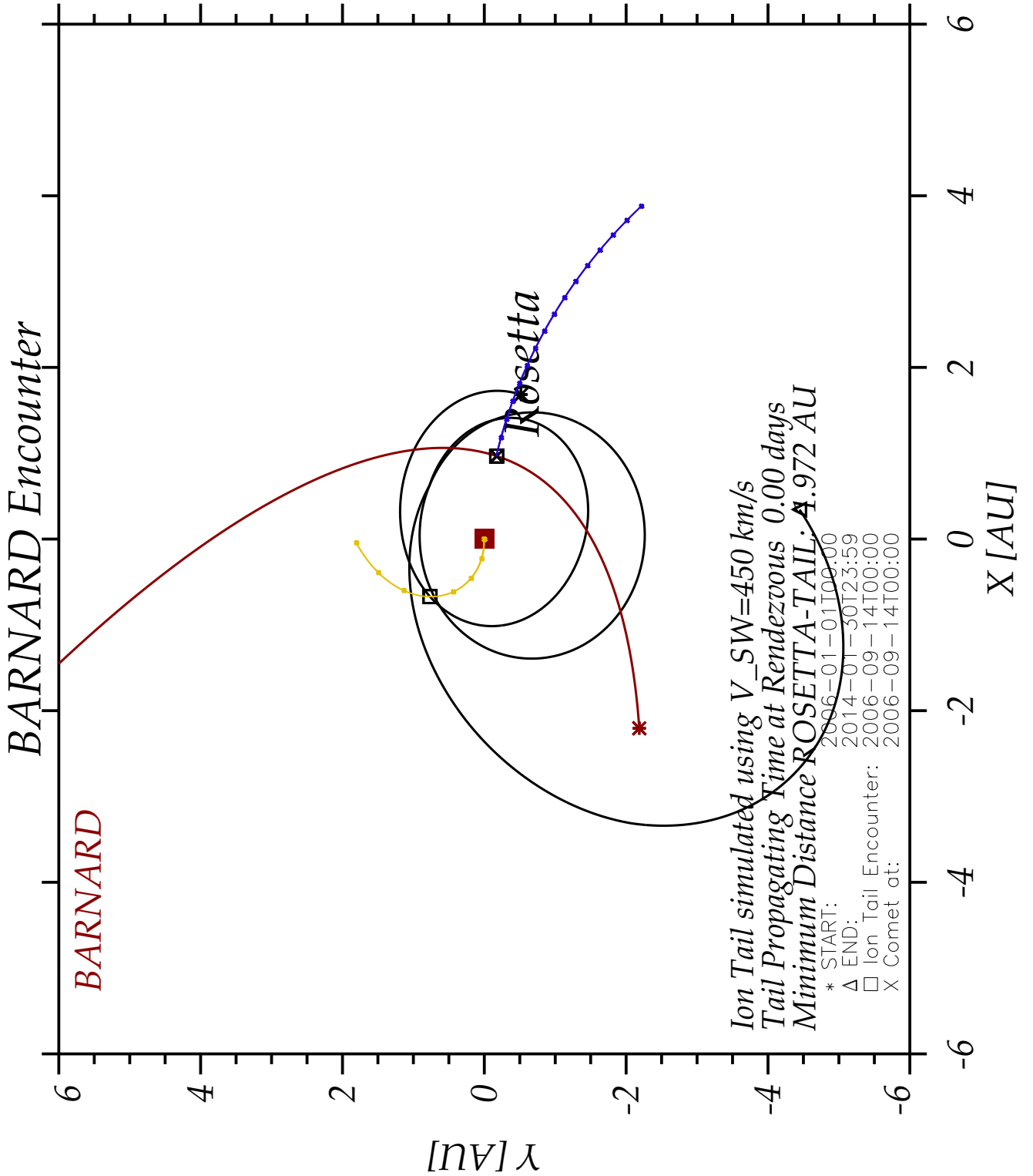


Figure 364: Overview: ROSETTA - BARNARD

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## 185 Comet 178P/HUG-BELL

<b>Comet: 178P/HUG-BELL</b>
<b>No Encounter below 0.2000AU</b>

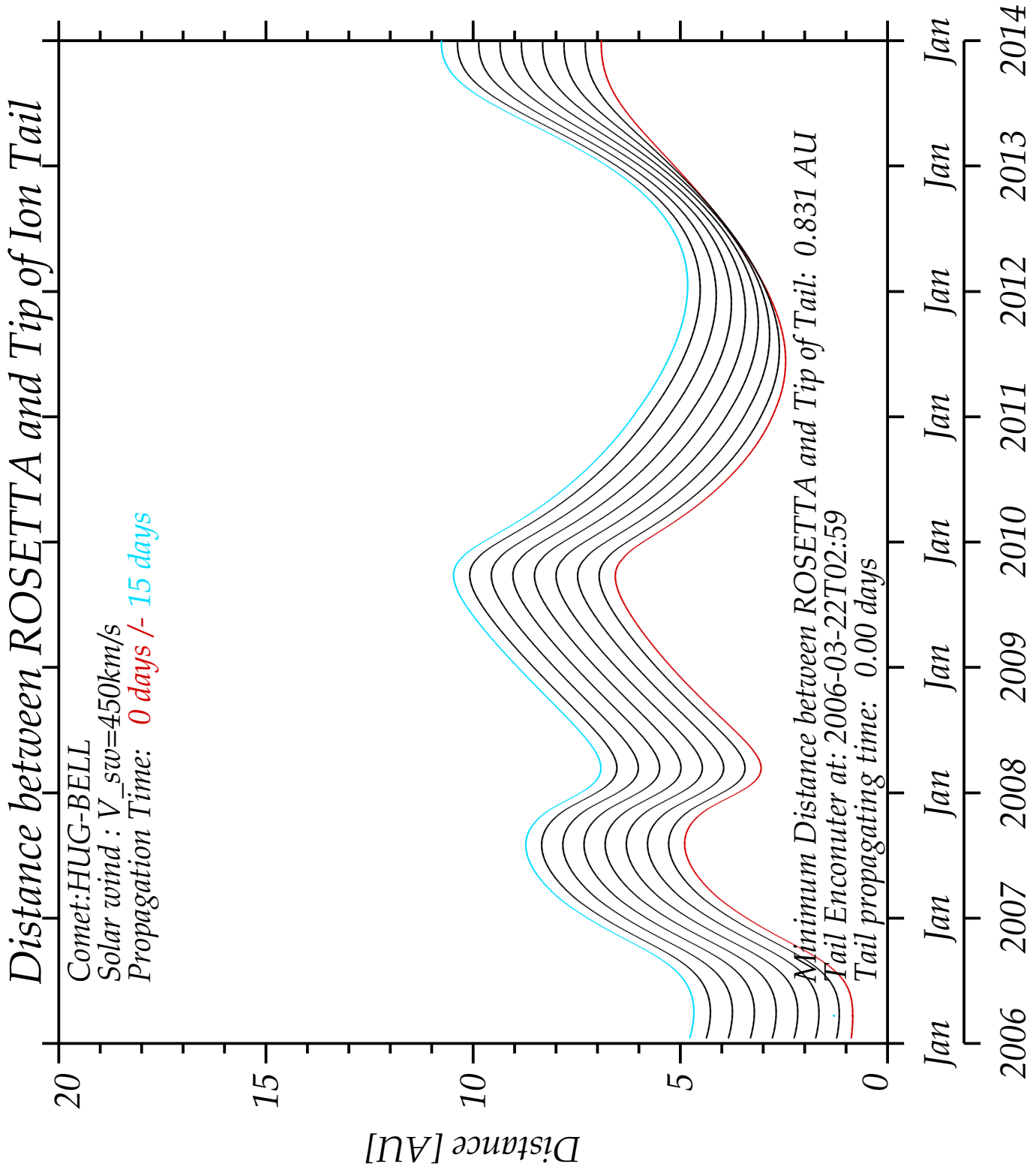


Figure 365: Minimum Distances: ROSETTA - HUG-BELL

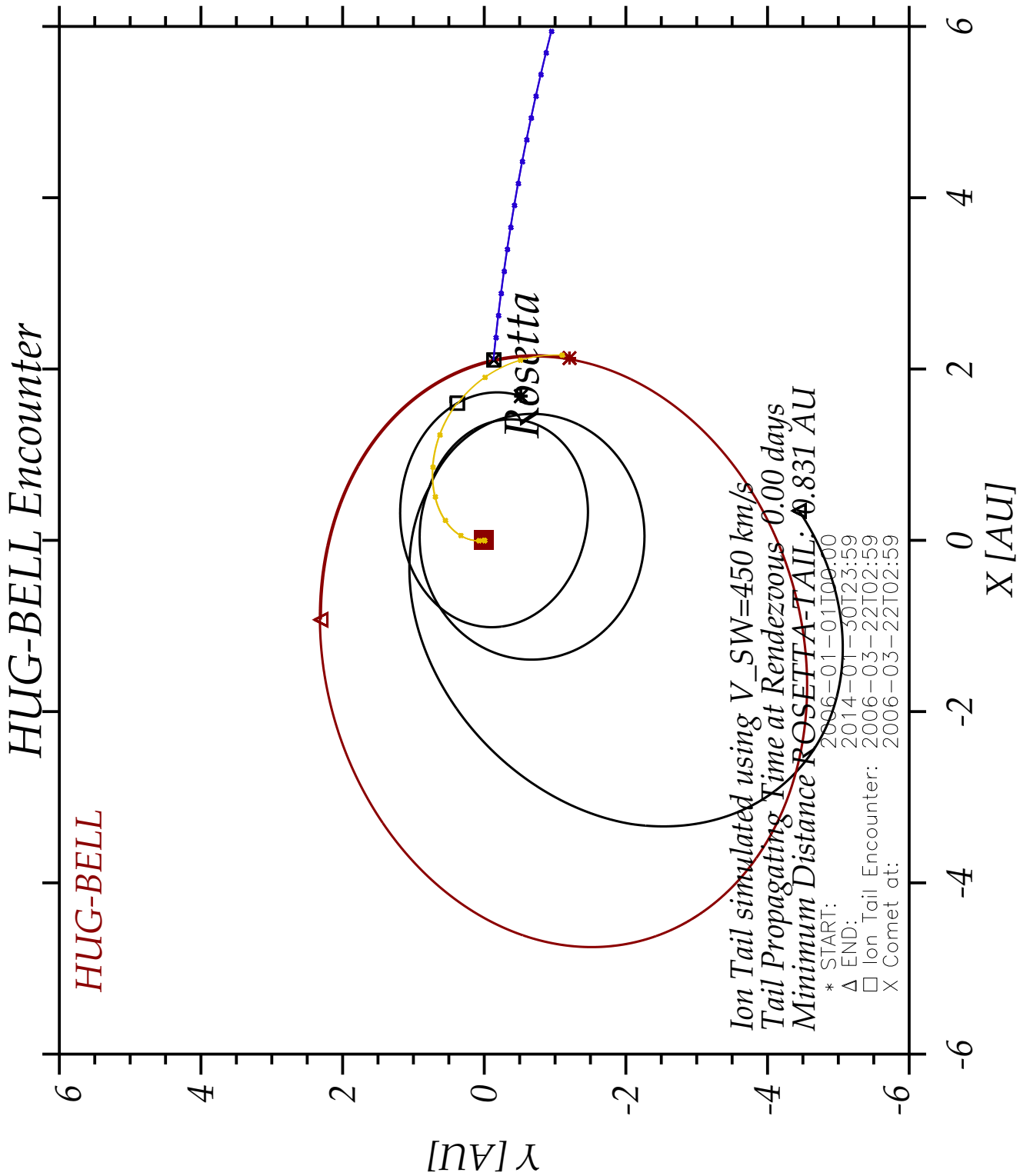


Figure 366: Overview: ROSETTA - HUG-BELL

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## 186 Comet LAGERKVIST1996R2

<b>Comet: LAGERKVIST1996R2</b>
<b>No Encounter below 0.2000AU</b>



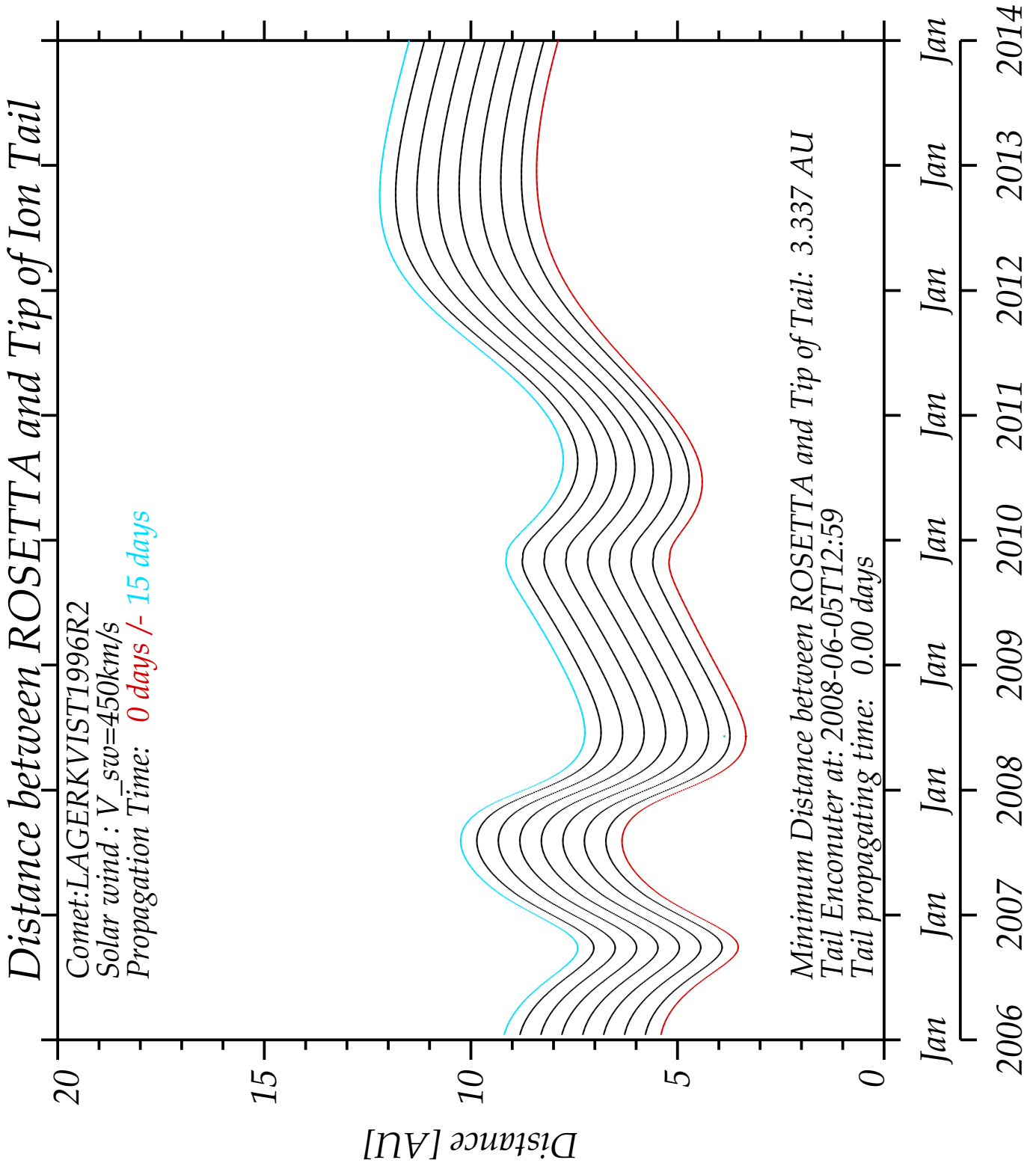


Figure 367: Minimum Distances: ROSETTA - LAGERKVIST1996R2

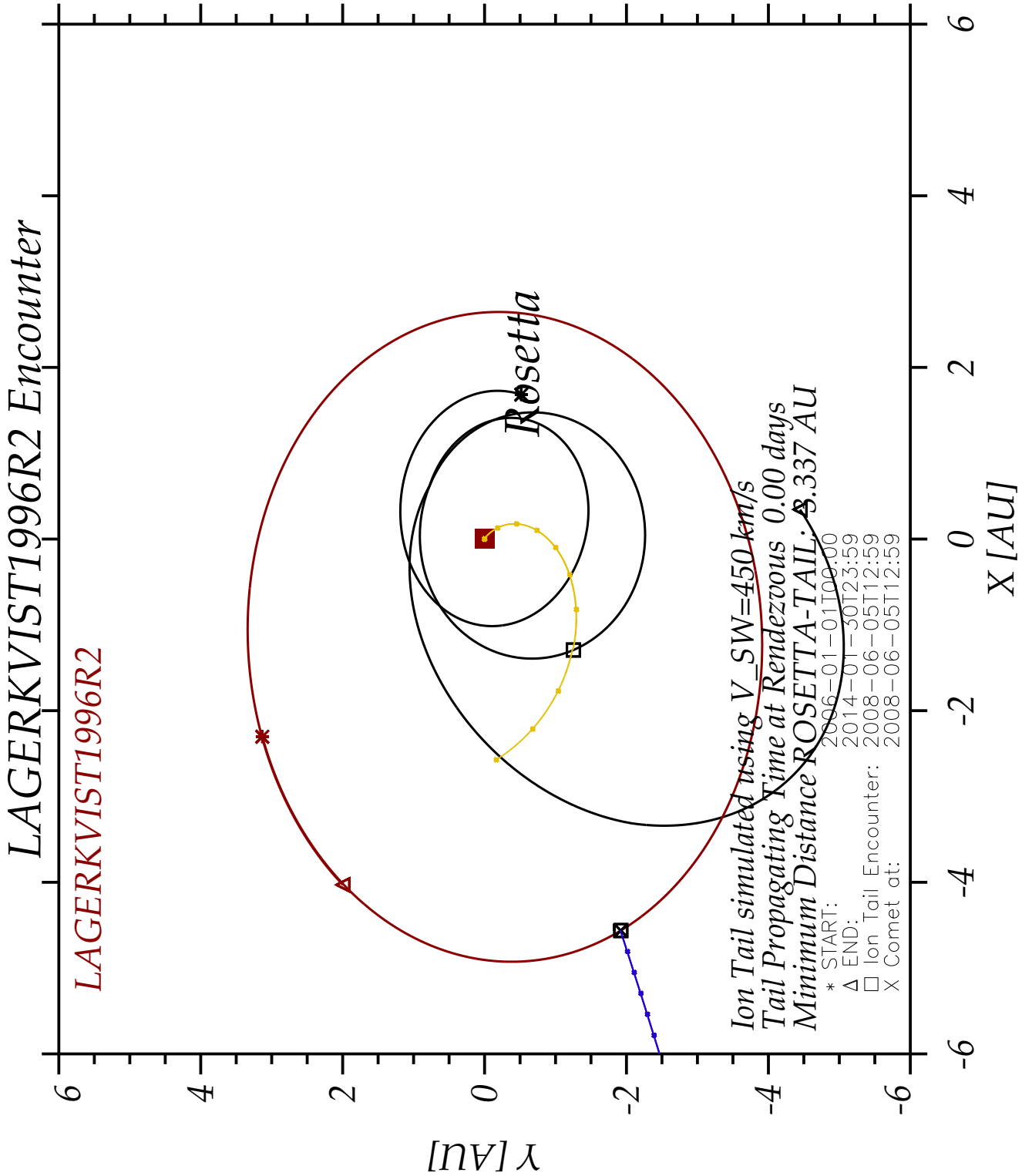


Figure 368: Overview: ROSETTA - LAGERKVIST1996R2

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## 187 Comet HALE-BOPP

<b>Comet: HALE-BOPP</b>
<b>No Encounter below 0.2000AU</b>

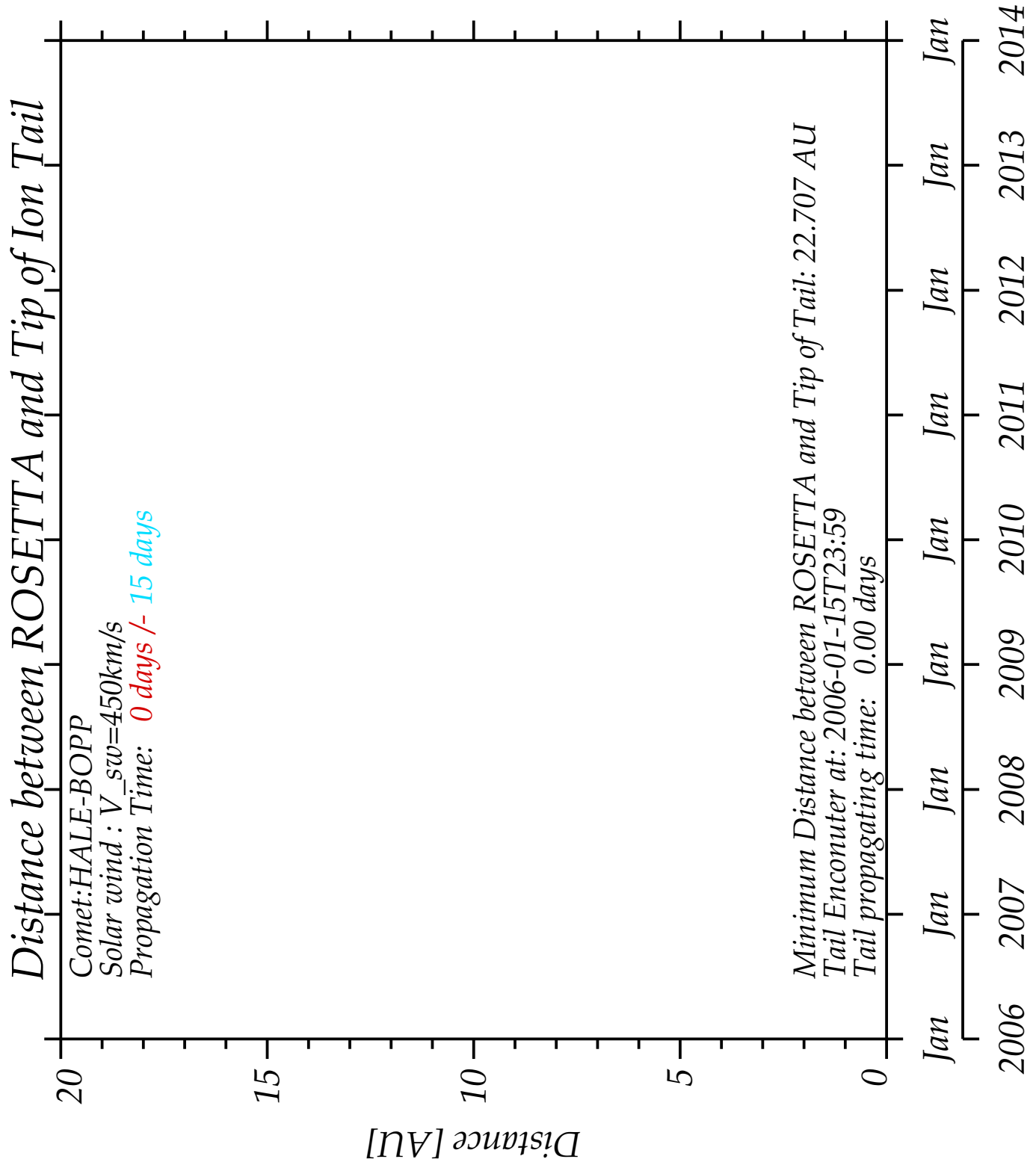


Figure 369: Minimum Distances: ROSETTA - HALE-BOPP

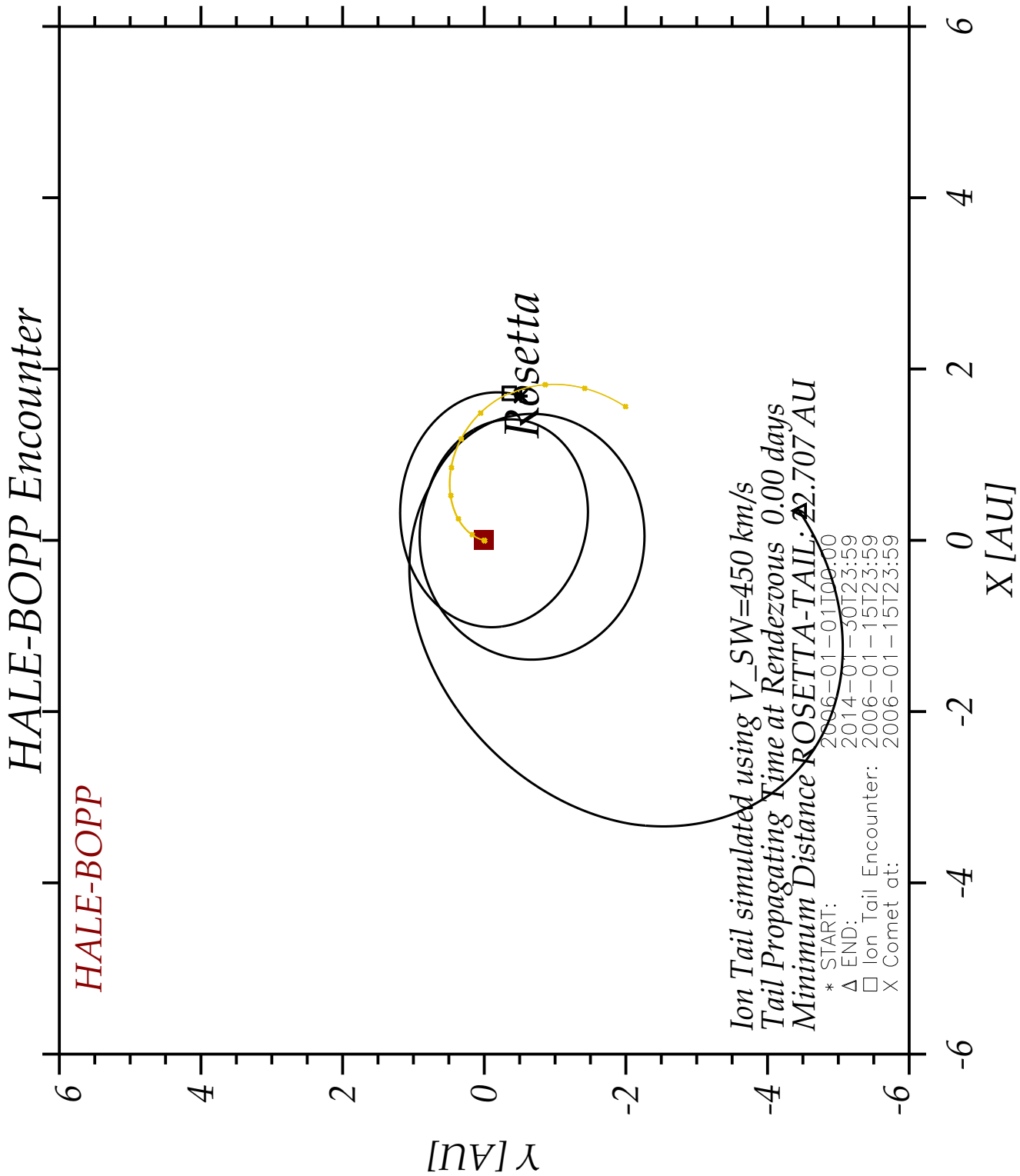


Figure 370: Overview: ROSETTA - HALE-BOPP

<p style="text-align: center;">R O S E T T A</p>	<p>Document: RO-IGEP-TR-0020  Issue: 1  Revision: 2</p>
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## 188 Comet C/1858DONATI

<p><b>Comet: C/1858DONATI</b></p>
<p><b>No Encounter below 0.2000AU</b></p>

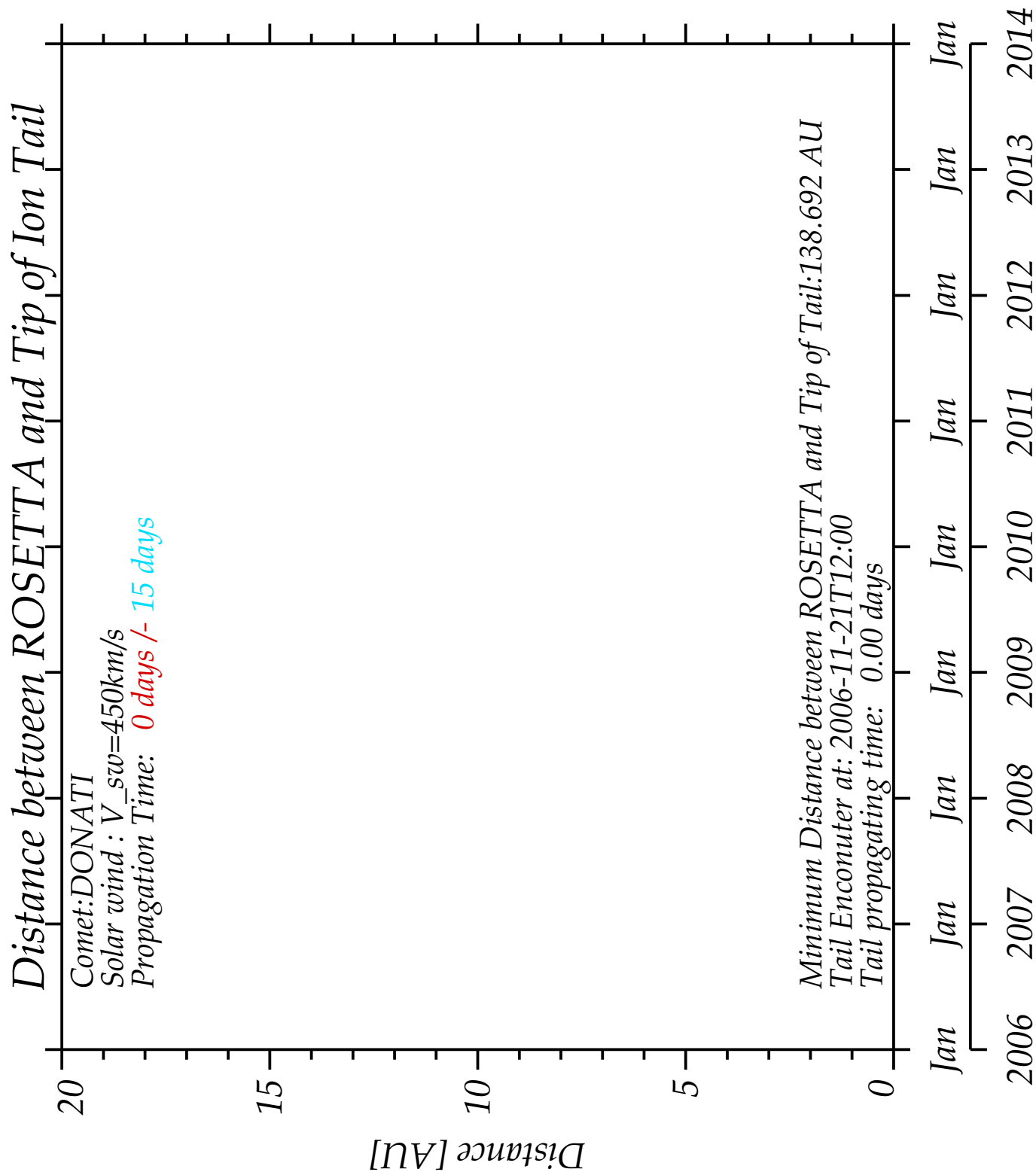


Figure 371: Minimum Distances: ROSETTA - DONATI

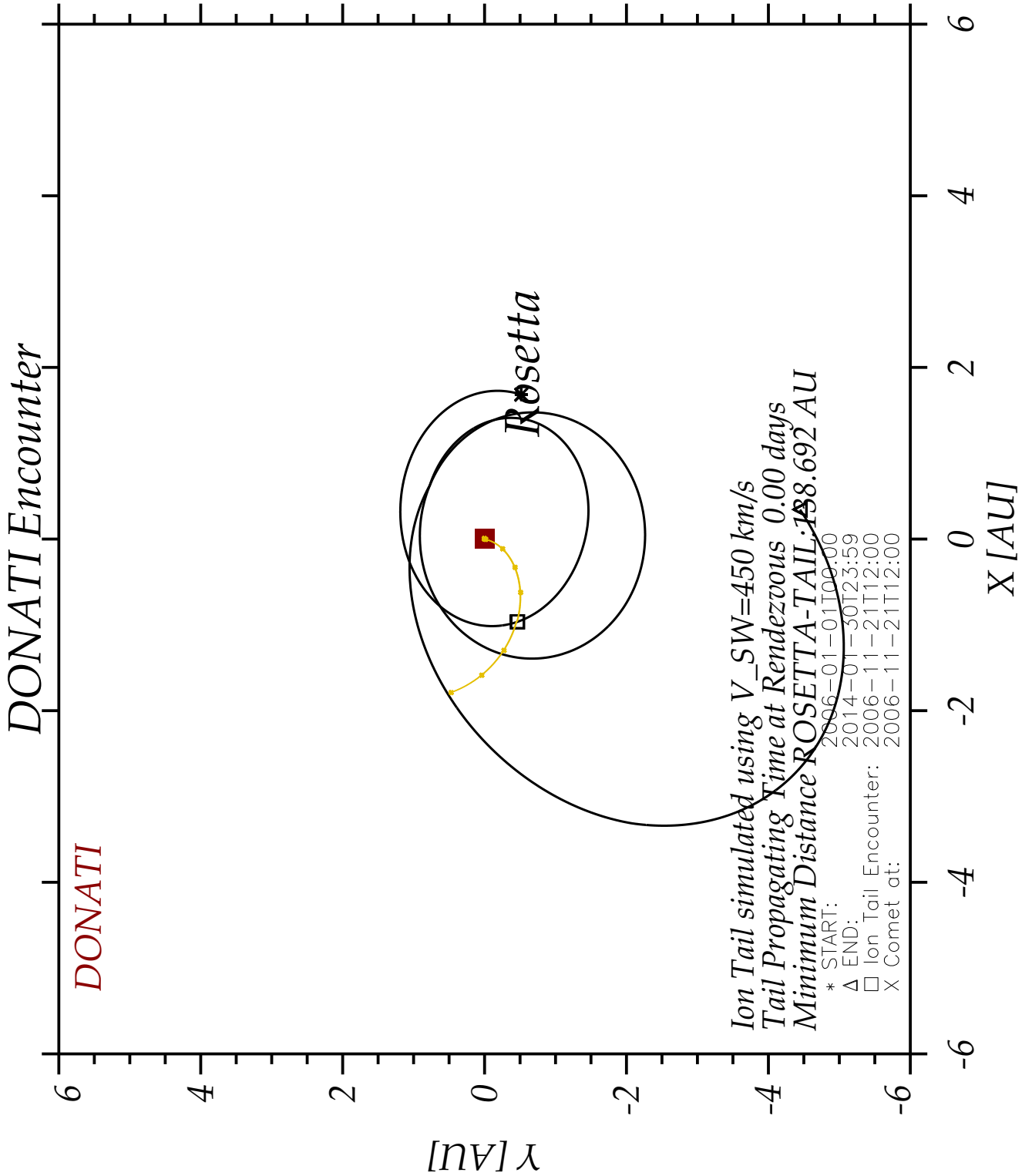


Figure 372: Overview: ROSETTA - DONATI



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## 189 Comet C/1762KLINKENBERG

<b>Comet: C/1762KLINKENBERG</b>
<b>No Encounter below 0.2000AU</b>

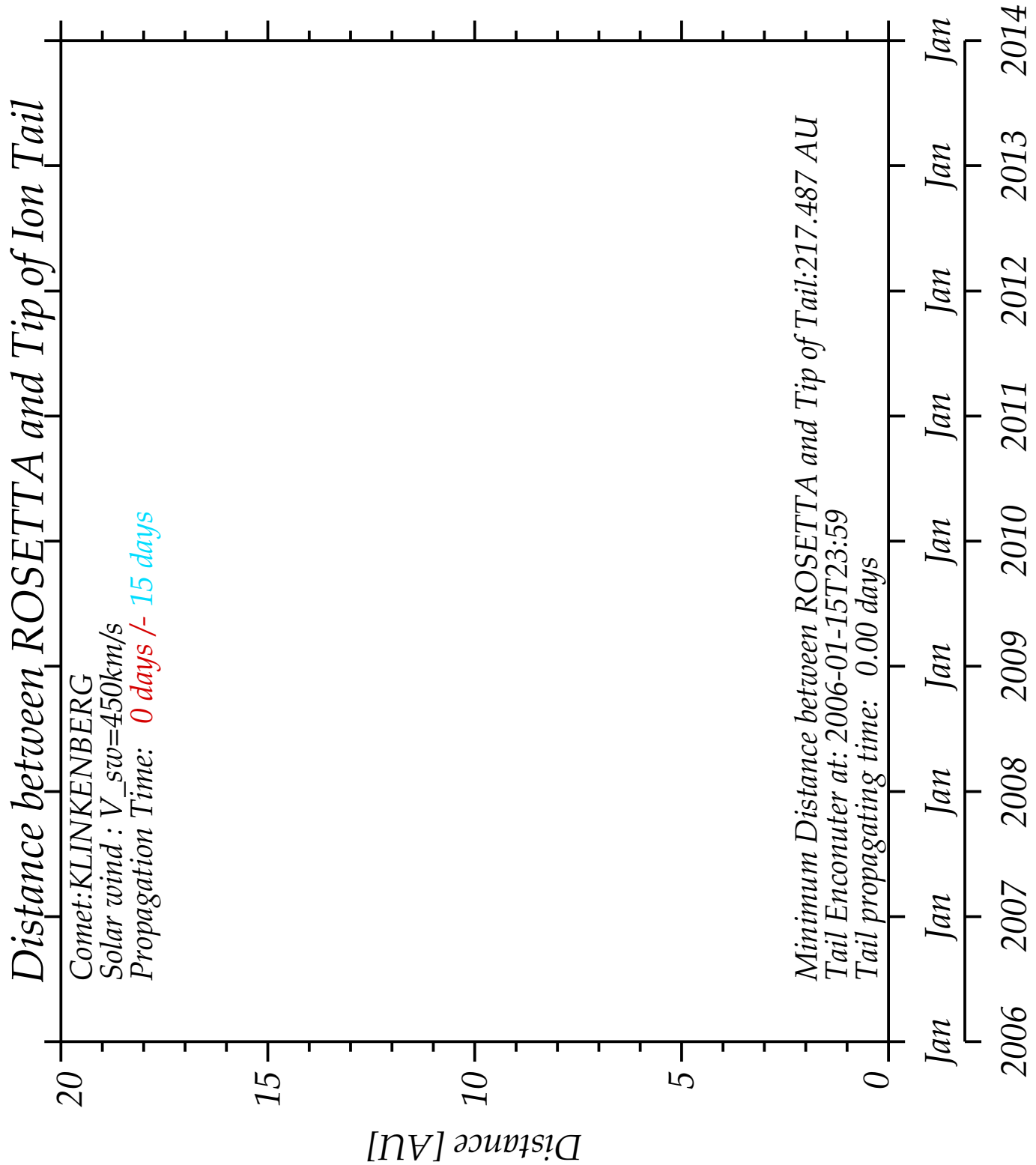


Figure 373: Minimum Distances: ROSETTA - KLINKENBERG

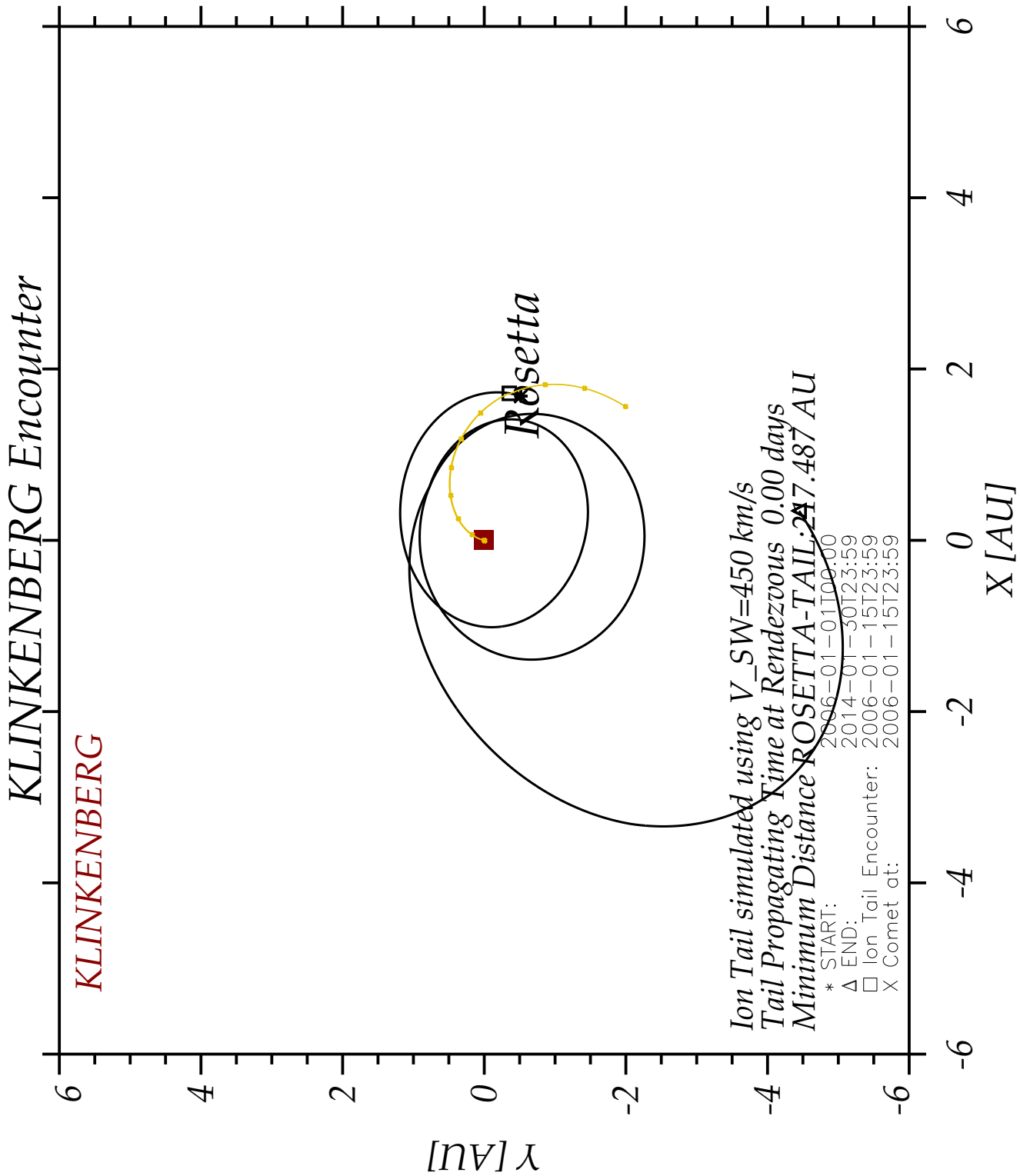


Figure 374: Overview: ROSETTA - KLINKENBERG

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## 190 Comet C/1995CAESAR

<b>Comet:</b>	<b>C/1995CAESAR</b>				
<b>Date of Encounter:</b>	<b>2013-04-18T10:29</b>				
<b>Minimum Distance</b>					
<b>ROSETTA/Ion Tail:</b>	<b>0.1980</b>				<b>AU</b>
<b>Position of ROSETTA</b>	<b>-1.0790</b>	<b>-5.0546</b>	<b>-0.3293</b>	<b>5.1790</b>	<b>AU,[x,y,z],r</b>
<b>Position of COMET:</b>	<b>-0.2809</b>	<b>-2.0418</b>	<b>-0.2119</b>	<b>2.0719</b>	<b>AU,[x,y,z],r</b>
<b>Velocity of ROSETTA</b>	<b>8.18</b>	<b>0.71</b>	<b>-0.60</b>	<b>8.24</b>	<b>km/s,[vx,vy,vz],v</b>
<b>Velocity of COMET:</b>	<b>21.20</b>	<b>-4.95</b>	<b>-0.27</b>	<b>21.77</b>	<b>km/s,[vx,vy,vz],v</b>
<b>Tail Intersection Angle:</b>	<b>113.4</b>				<b>deg</b>
<b>Velocity of ROSETTA</b>					
<b>normal to Tail:</b>	<b>7.56</b>				<b>km/s</b>
<b>Proagting Time</b>					
<b>of Tail</b>	<b>11.960</b>				<b>days</b>

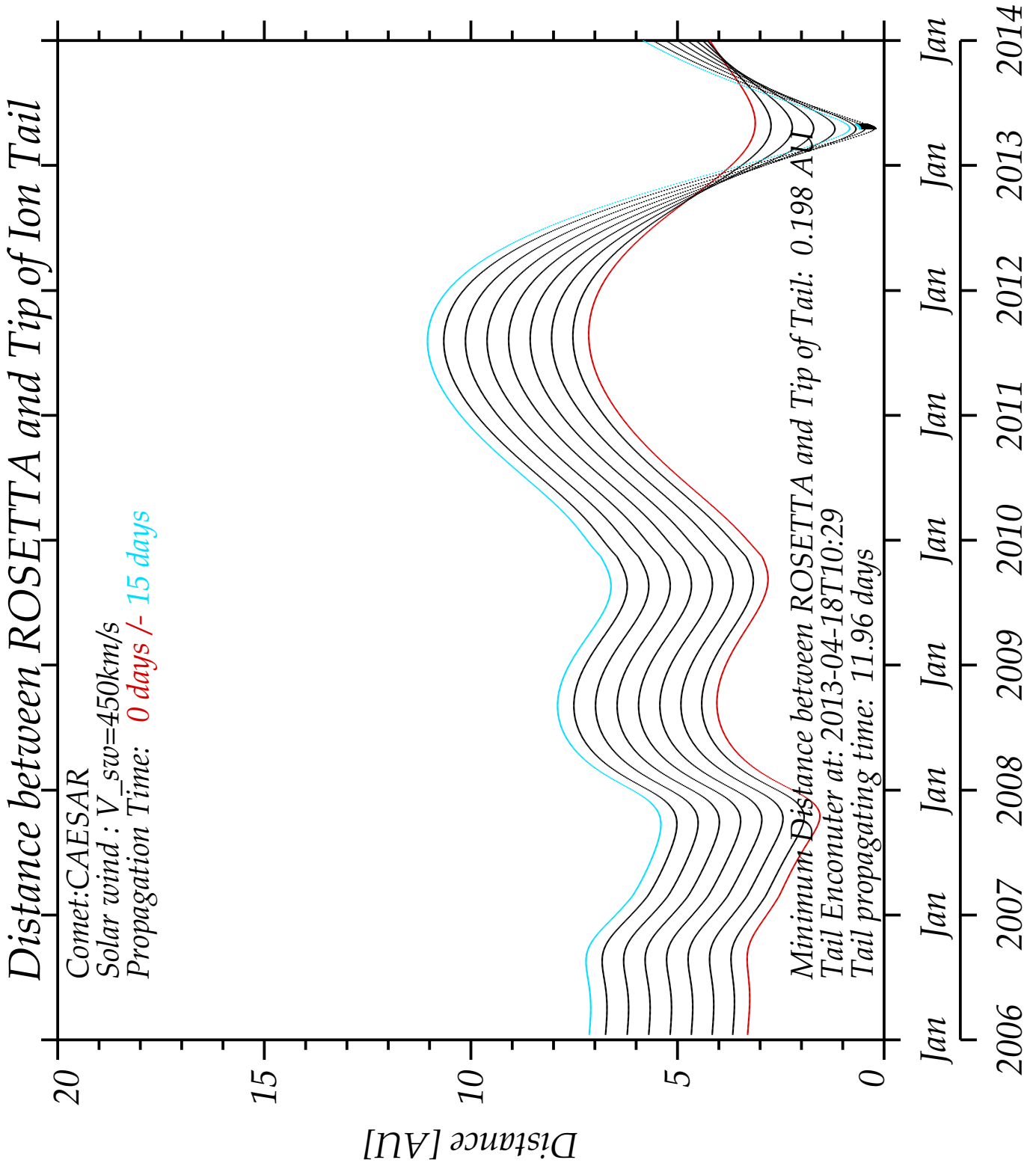


Figure 375: Minimum Distances: ROSETTA - CAESAR

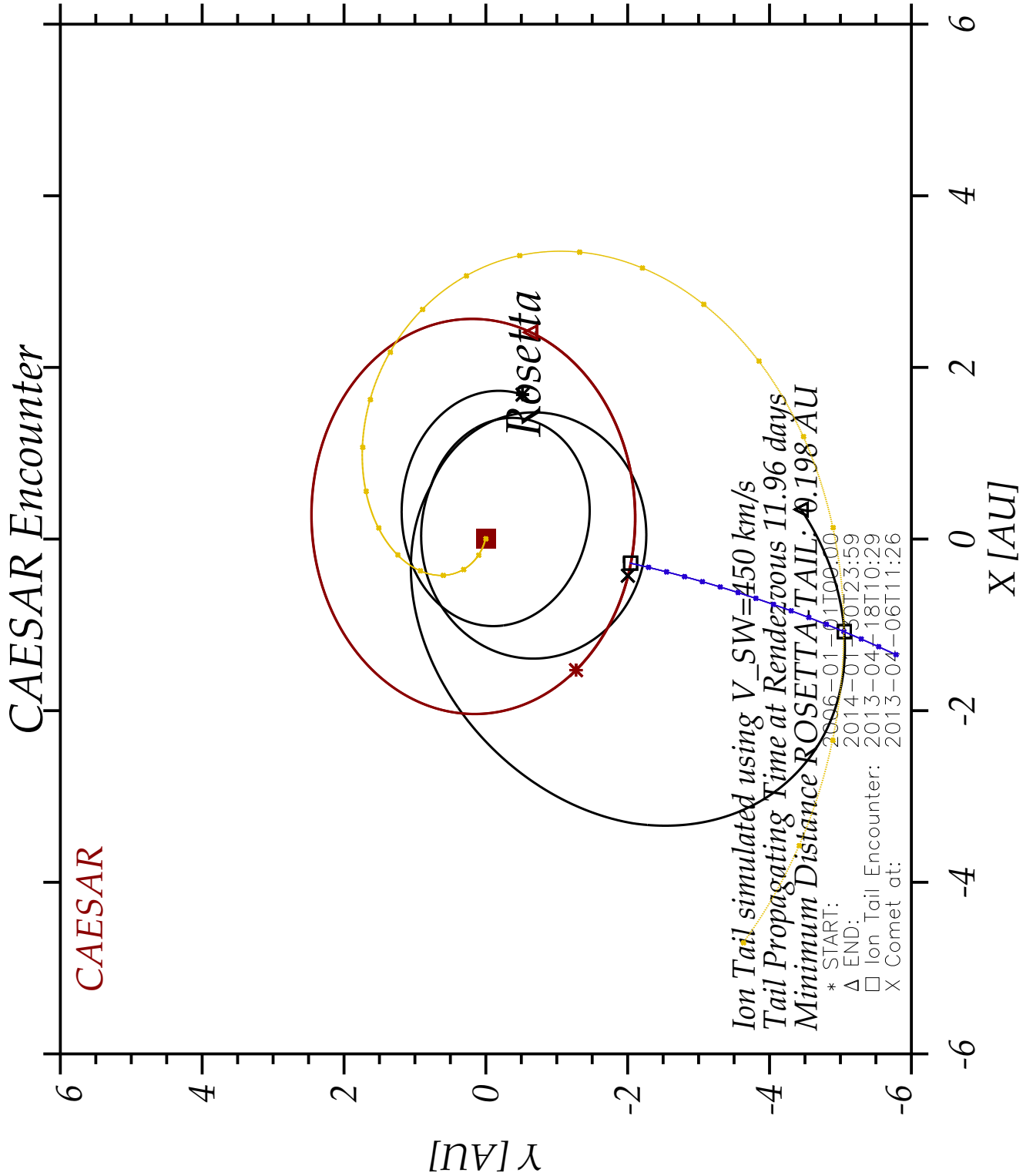


Figure 376: Overview: ROSETTA - CAESAR

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## 191 Comet C2004/BRADFIELD 2004

<b>Comet: C2004/BRADFIELD 2004</b>
<b>No Encounter below 0.2000AU</b>

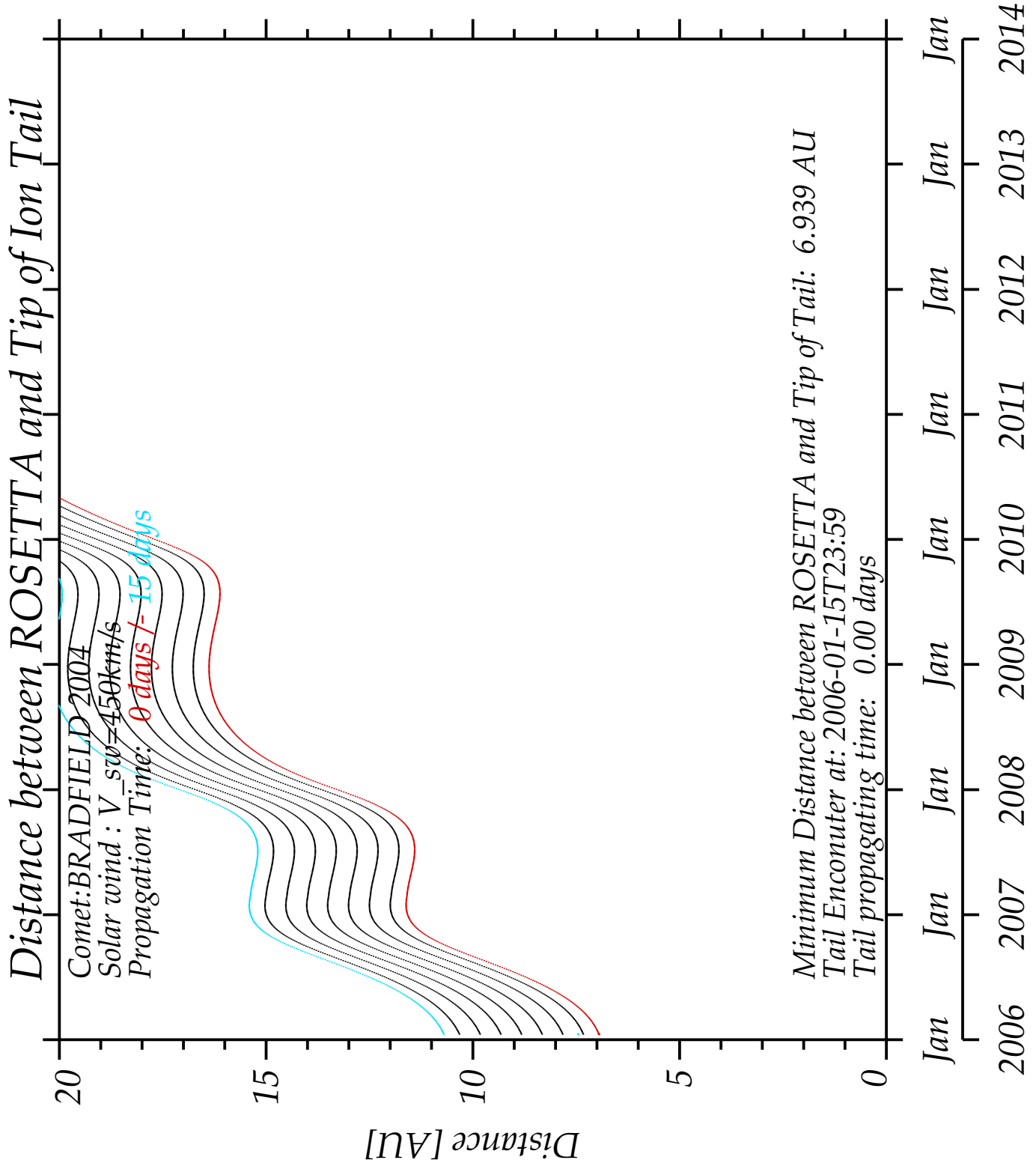


Figure 377: Minimum Distances: ROSETTA - BRADFIELD 2004



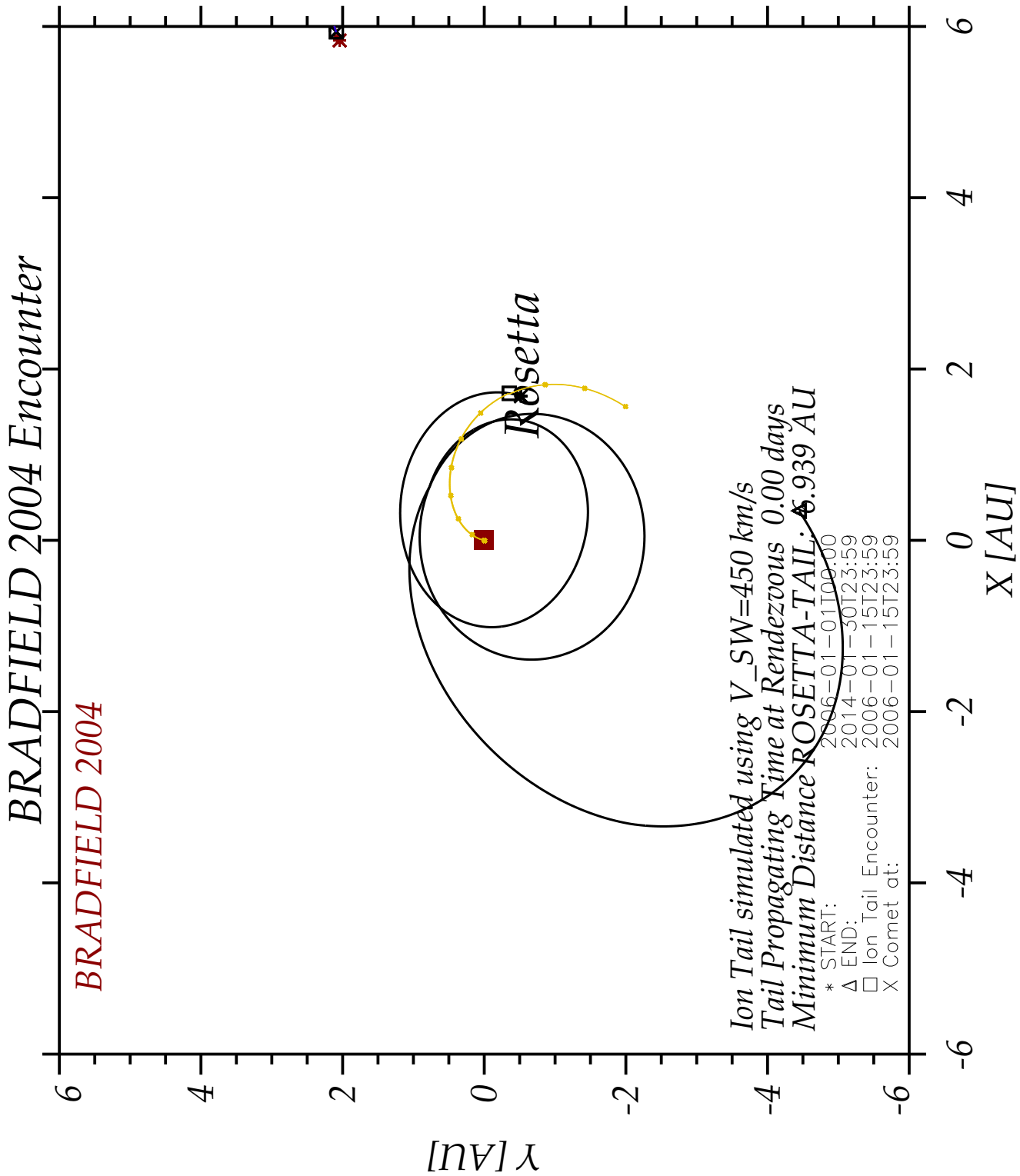


Figure 378: Overview: ROSETTA - BRADFIELD 2004

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**192 Comet LINEAR2003O2**

<b>Comet: LINEAR2003O2</b>
<b>No Encounter below 0.2000AU</b>

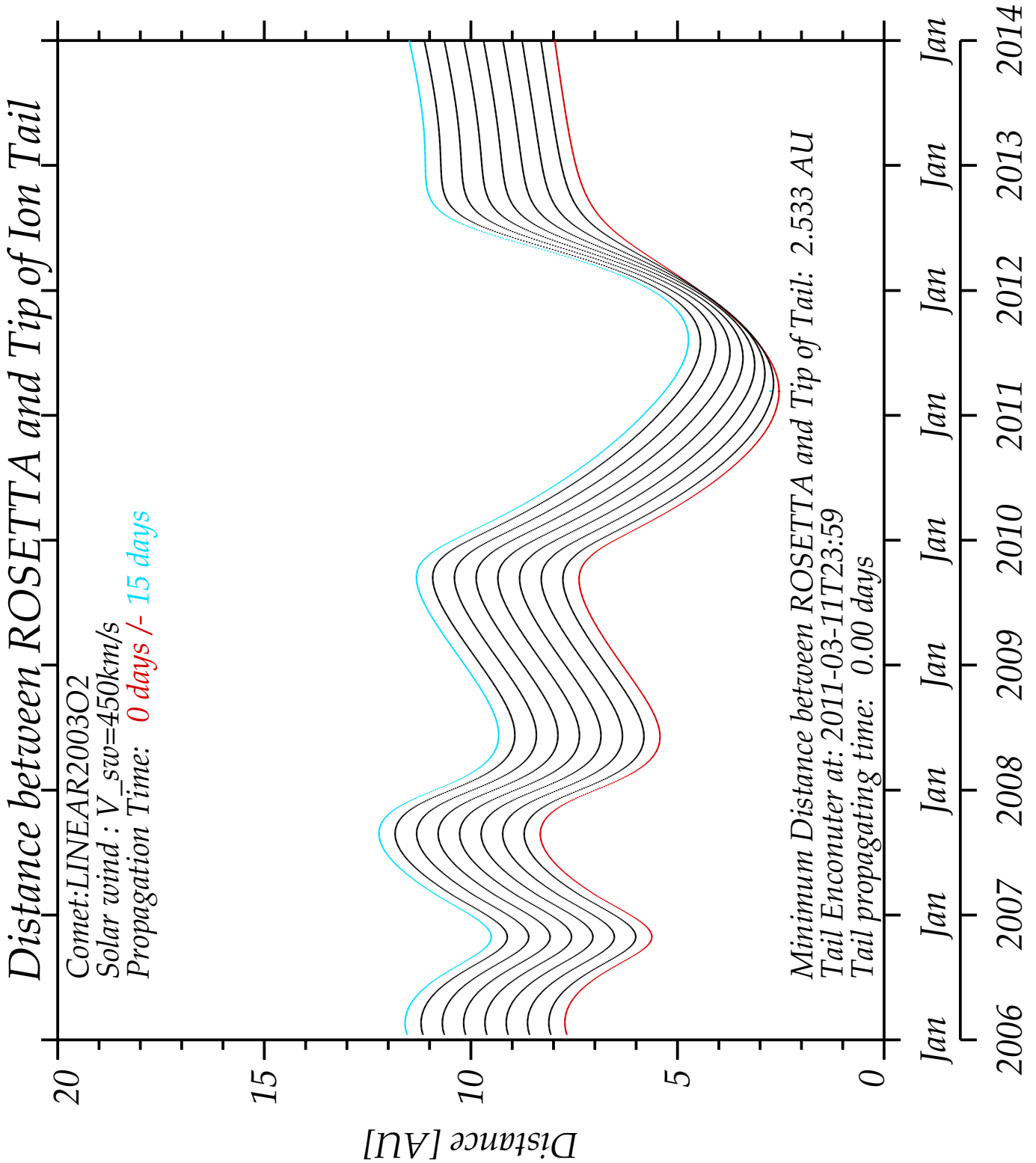


Figure 379: Minimum Distances: ROSETTA - LINEAR2003O2

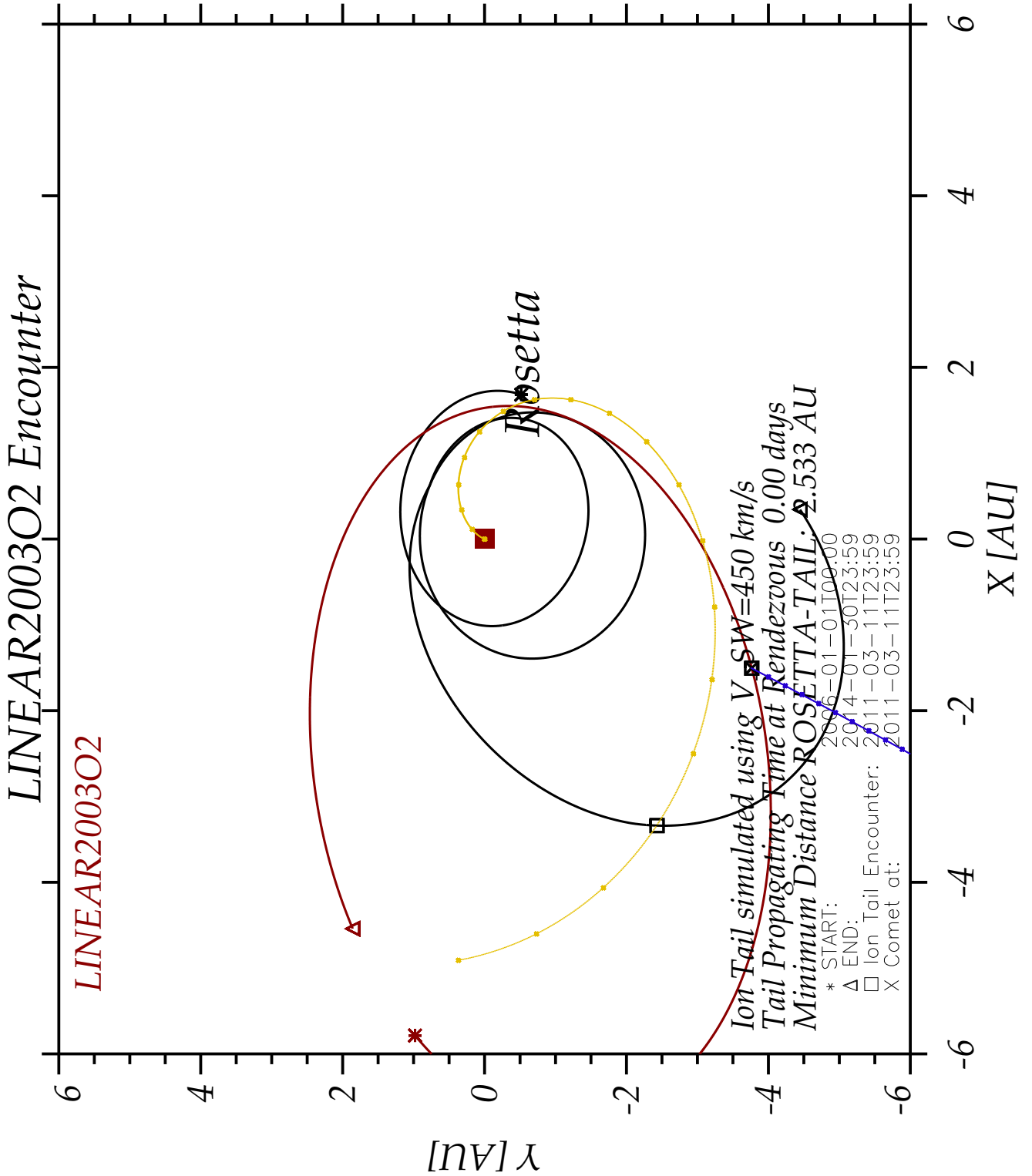


Figure 380: Overview: ROSETTA - LINEAR2003O2

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## 193 Comet SCOTTI2001X2

<b>Comet: SCOTTI2001X2</b>
<b>No Encounter below 0.2000AU</b>

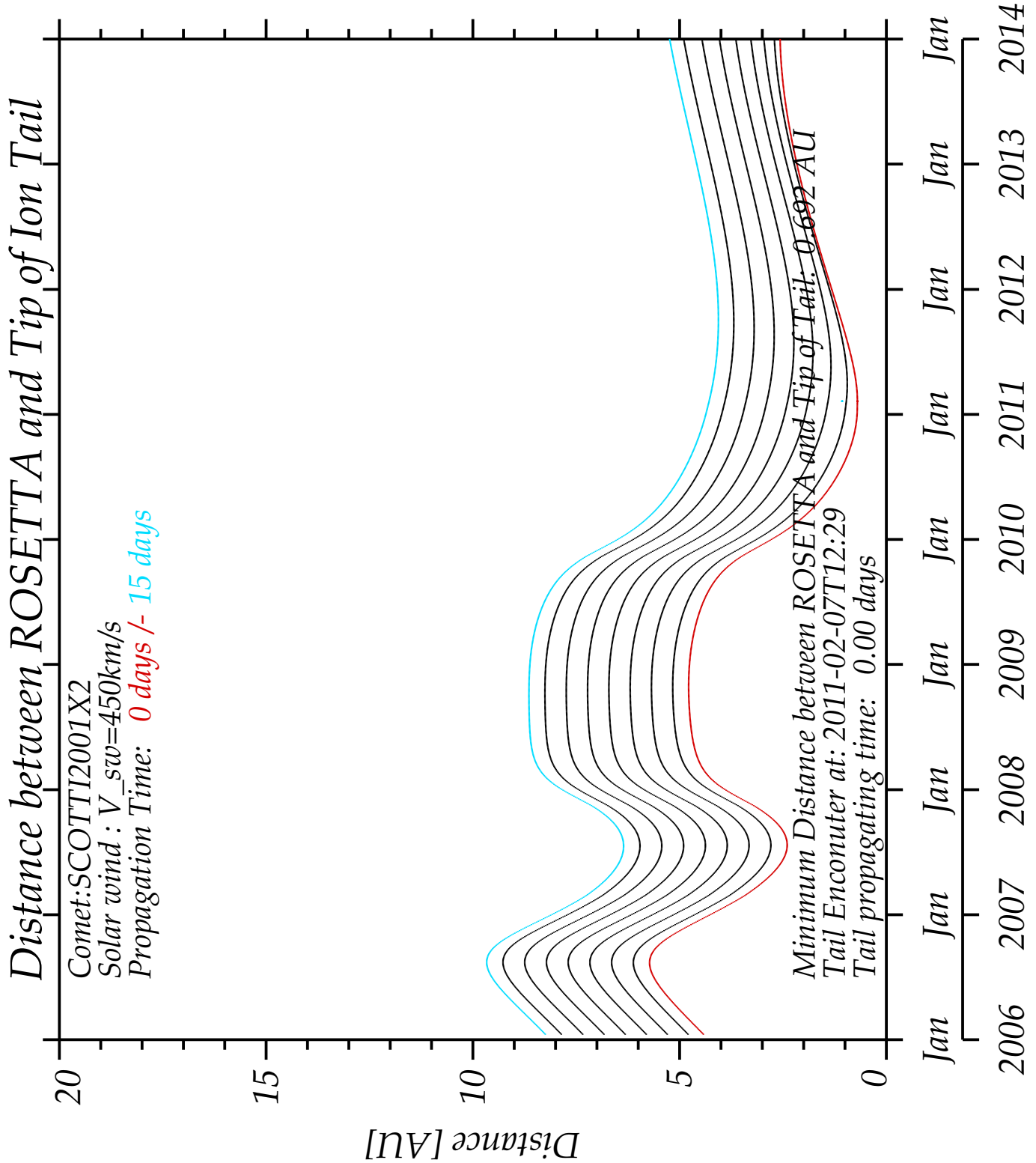


Figure 381: Minimum Distances: ROSETTA - SCOTTI2001X2

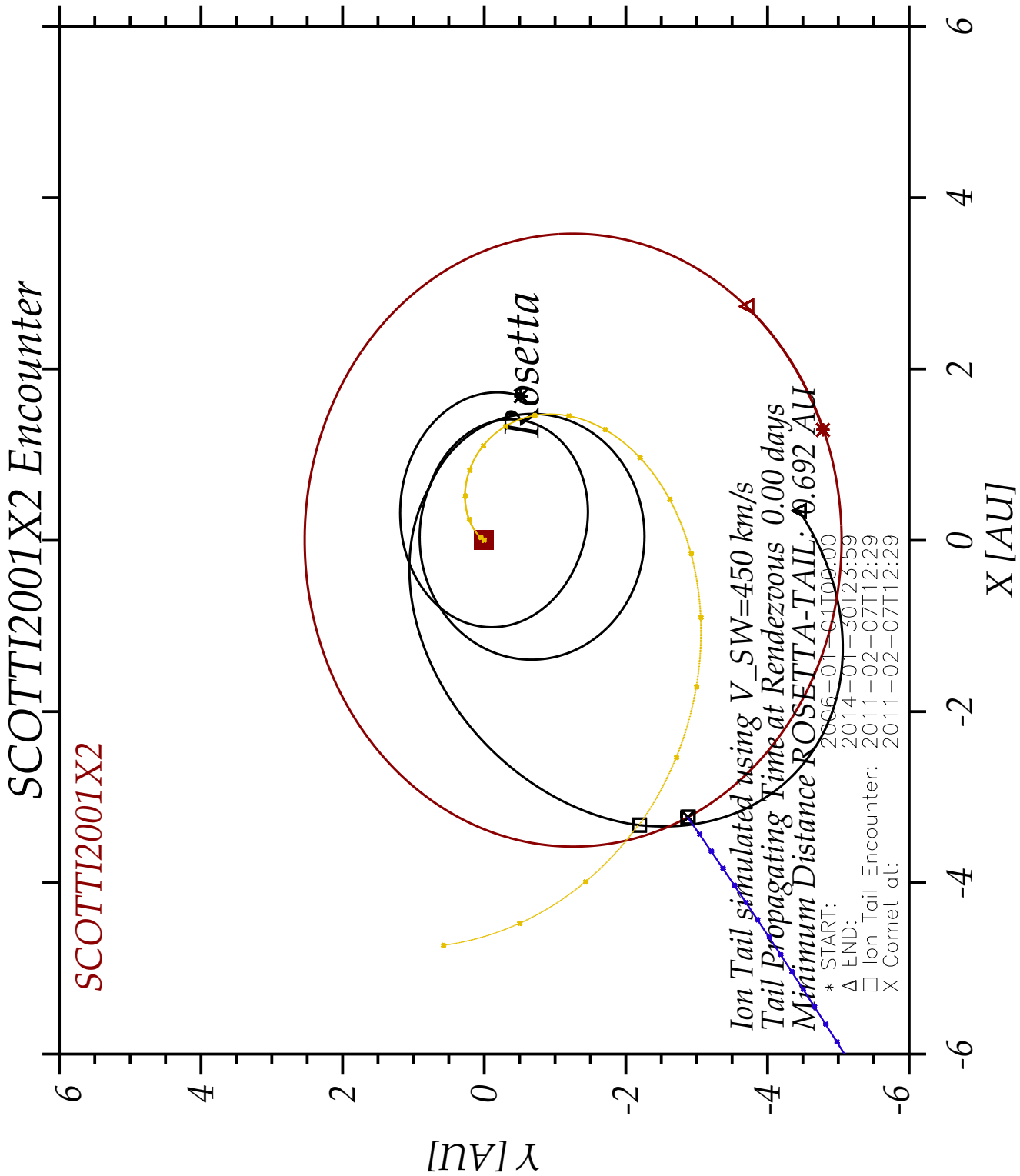


Figure 382: Overview: ROSETTA - SCOTTI2001X2

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## 194 Comet LINEAR2003HT15

<b>Comet:</b>	<b>LINEAR2003HT15</b>				
<b>Date of Encounter:</b>	<b>2014-01-07T23:59</b>				
<b>Minimum Distance</b>					
<b>ROSETTA/Ion Tail:</b>	<b>0.1020</b>				<b>AU</b>
<b>Position of ROSETTA</b>	<b>0.2287</b>	<b>-4.5337</b>	<b>-0.3919</b>	<b>4.5563</b>	<b>AU,[x,y,z],r</b>
<b>Position of COMET:</b>	<b>0.1392</b>	<b>-3.2978</b>	<b>-0.3289</b>	<b>3.3171</b>	<b>AU,[x,y,z],r</b>
<b>Velocity of ROSETTA</b>	<b>8.64</b>	<b>6.34</b>	<b>-0.17</b>	<b>10.72</b>	<b>km/s,[vx,vy,vz],v</b>
<b>Velocity of COMET:</b>	<b>15.88</b>	<b>-4.44</b>	<b>-8.57</b>	<b>18.59</b>	<b>km/s,[vx,vy,vz],v</b>
<b>Tail Intersection Angle:</b>	<b>127.2</b>				<b>deg</b>
<b>Velocity of ROSETTA</b>					
<b>normal to Tail:</b>	<b>8.53</b>				<b>km/s</b>
<b>Progagting Time</b>					
<b>of Tail</b>	<b>4.790</b>				<b>days</b>



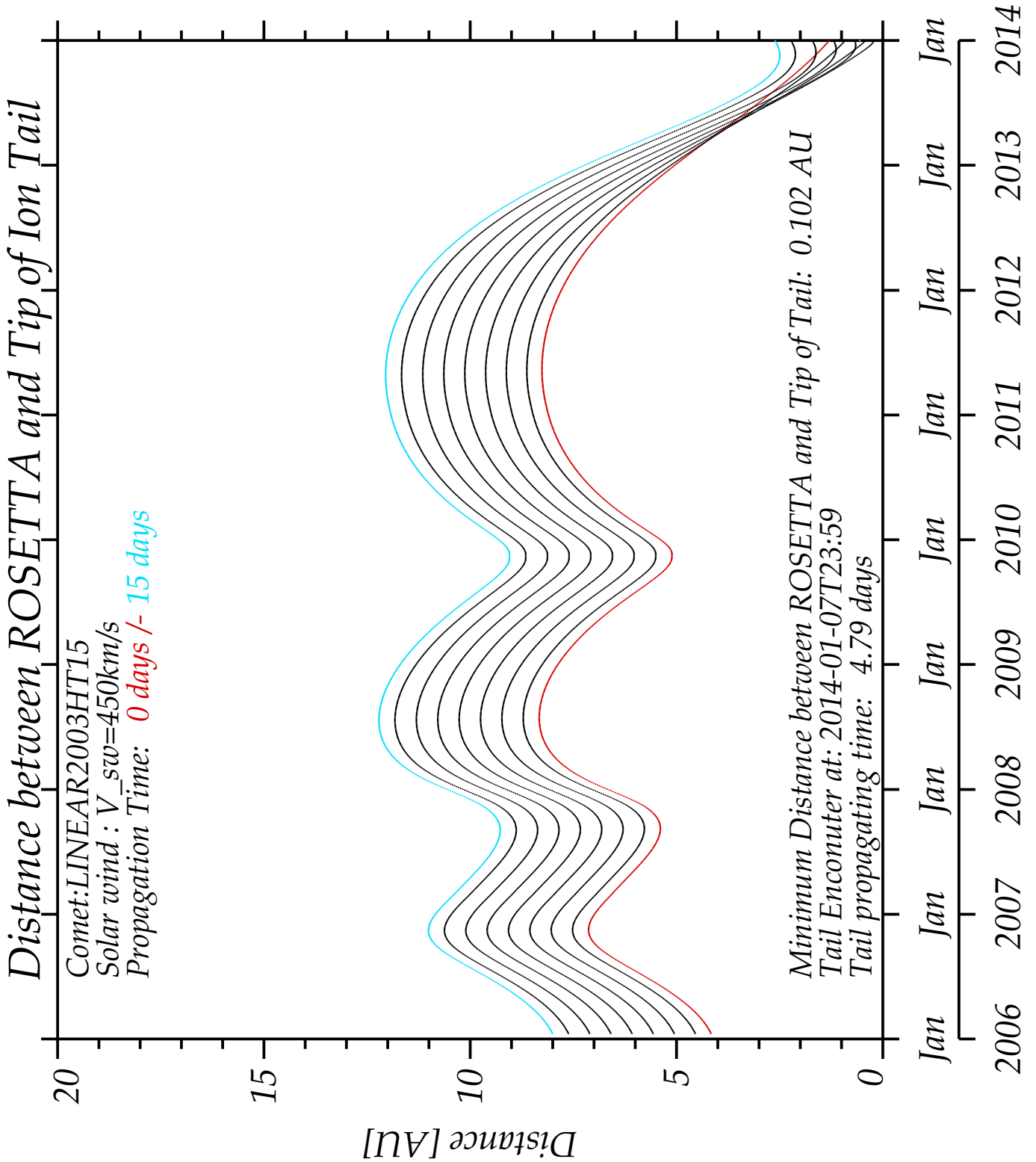


Figure 383: Minimum Distances: ROSETTA - LINEAR2003HT15

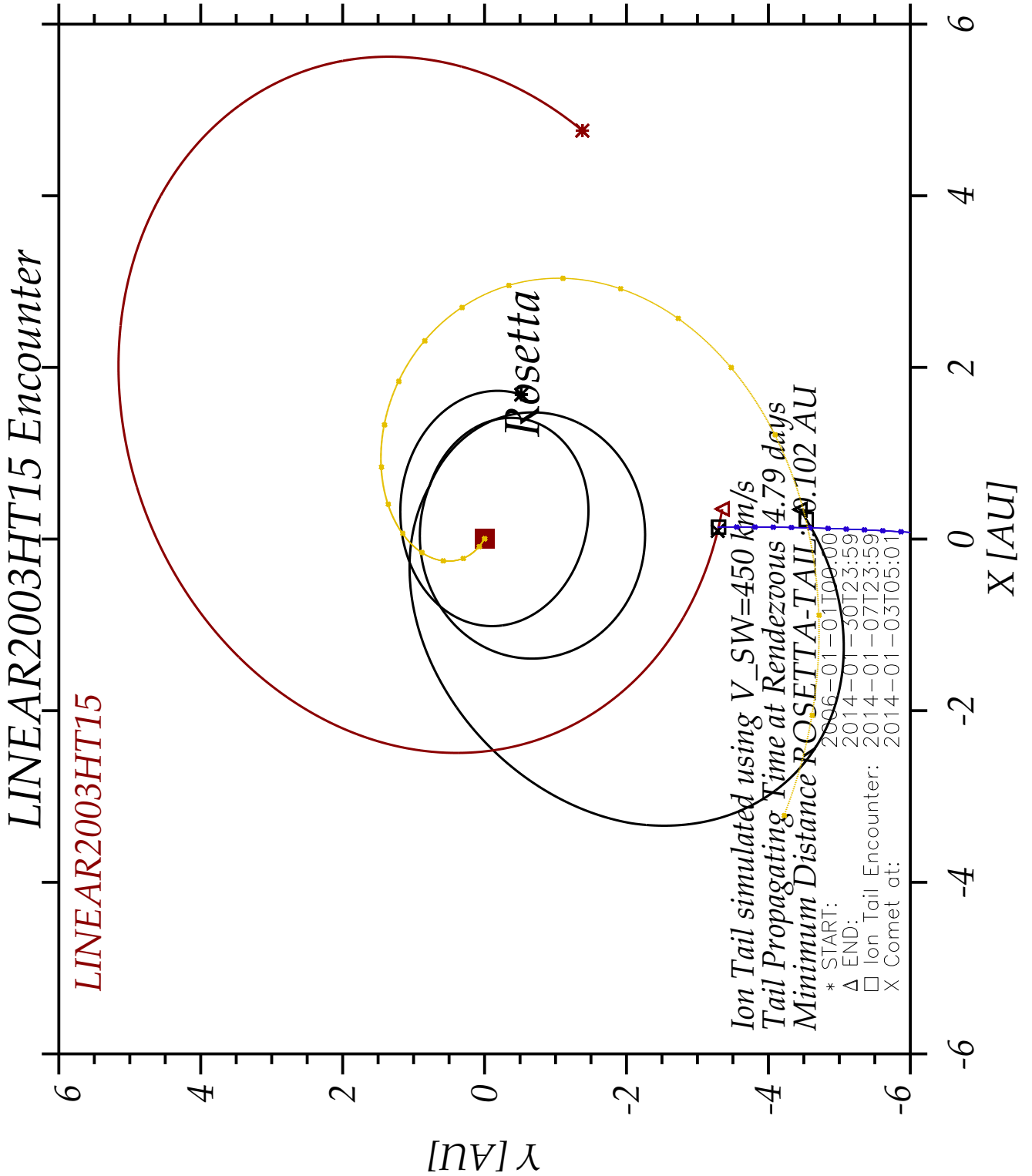


Figure 384: Overview: ROSETTA - LINEAR2003HT15

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## 195 Comet CATALINA-LINEAR

<b>Comet:</b>	<b>CATALINA-LINEAR</b>				
<b>Date of Encounter:</b>	<b>2011-03-17T21:59</b>				
<b>Minimum Distance</b>					
<b>ROSETTA/Ion Tail:</b>	<b>0.0440</b>				<b>AU</b>
<b>Position of ROSETTA</b>	<b>-3.3402</b>	<b>-2.4730</b>	<b>0.0659</b>	<b>4.1566</b>	<b>AU,[x,y,z],r</b>
<b>Position of COMET:</b>	<b>-1.9232</b>	<b>-1.5239</b>	<b>0.0559</b>	<b>2.4544</b>	<b>AU,[x,y,z],r</b>
<b>Velocity of ROSETTA</b>	<b>-0.19</b>	<b>-12.31</b>	<b>-1.00</b>	<b>12.35</b>	<b>km/s,[vx,vy,vz],v</b>
<b>Velocity of COMET:</b>	<b>5.33</b>	<b>-21.12</b>	<b>-2.02</b>	<b>21.88</b>	<b>km/s,[vx,vy,vz],v</b>
<b>Tail Intersection Angle:</b>	<b>57.3</b>				<b>deg</b>
<b>Velocity of ROSETTA</b>					
<b>normal to Tail:</b>	<b>10.40</b>				<b>km/s</b>
<b>Proagting Time</b>					
<b>of Tail</b>	<b>6.650</b>				<b>days</b>

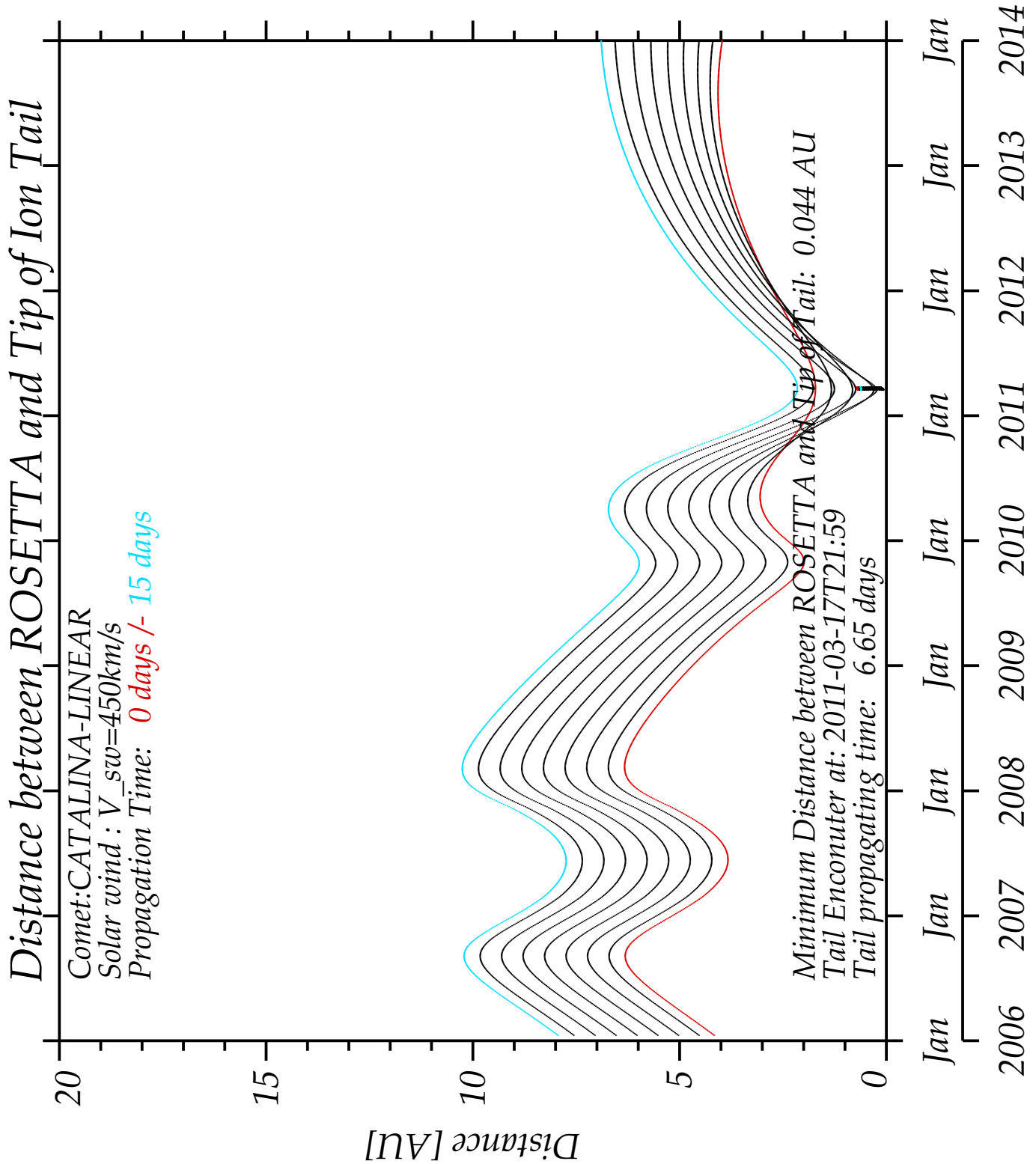


Figure 385: Minimum Distances: ROSETTA - CATALINA-LINEAR

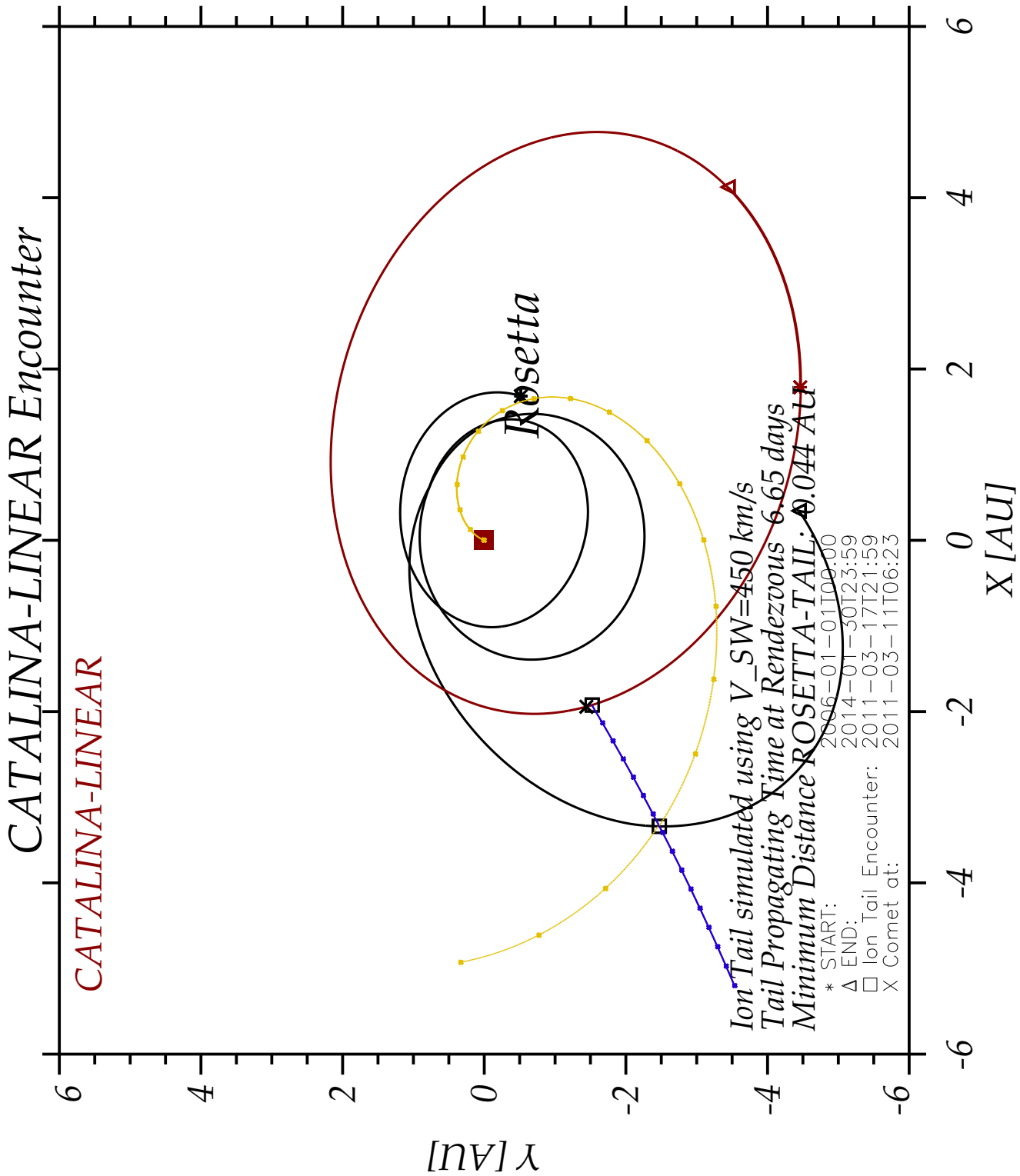


Figure 386: Overview: ROSETTA - CATALINA-LINEAR

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## **196 Comet C2004/MACHHOLZ 2004**

<b>Comet: C2004/MACHHOLZ 2004</b>
<b>No Encounter below 0.2000AU</b>

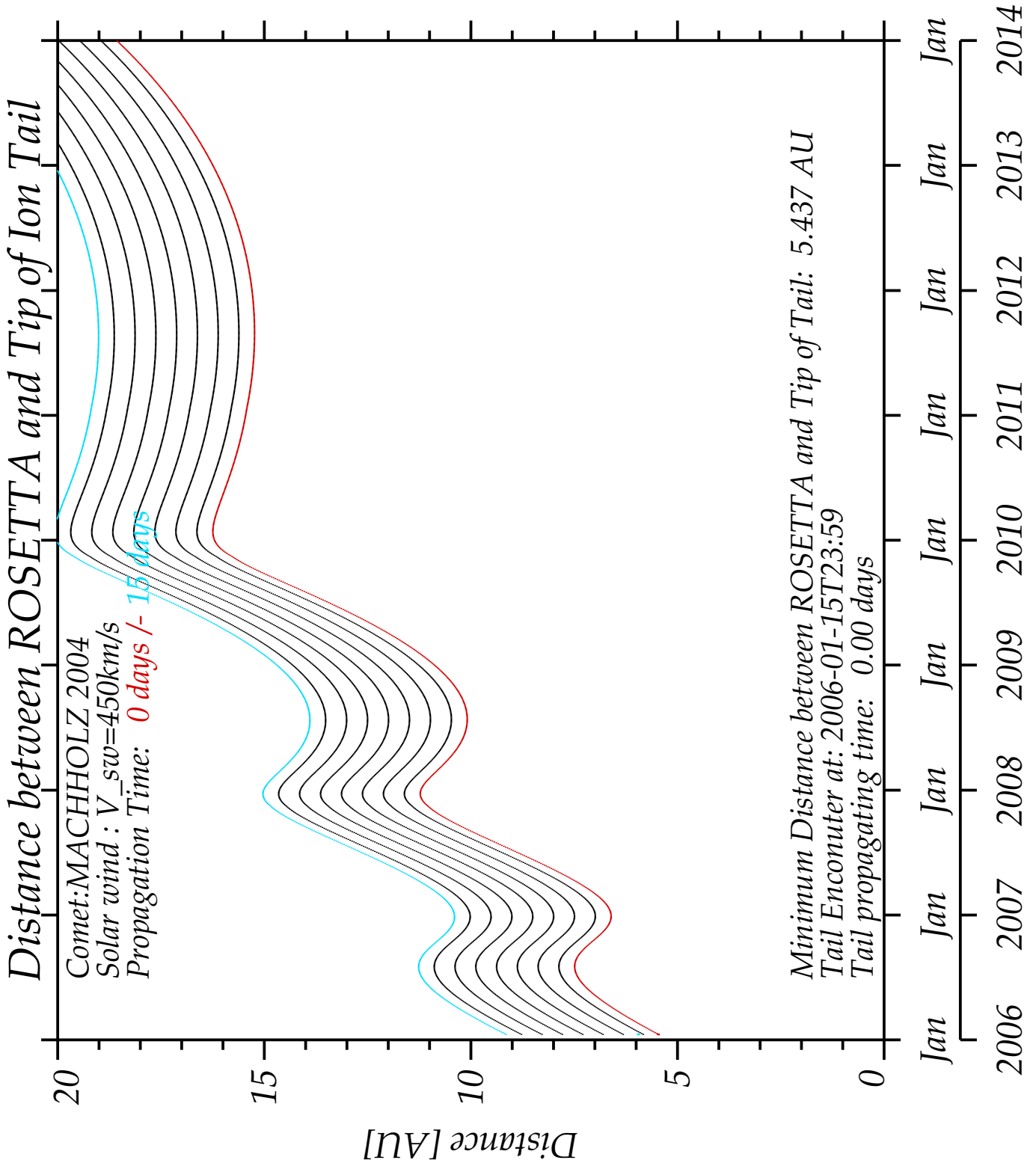


Figure 387: Minimum Distances: ROSETTA - MACHHOLZ 2004

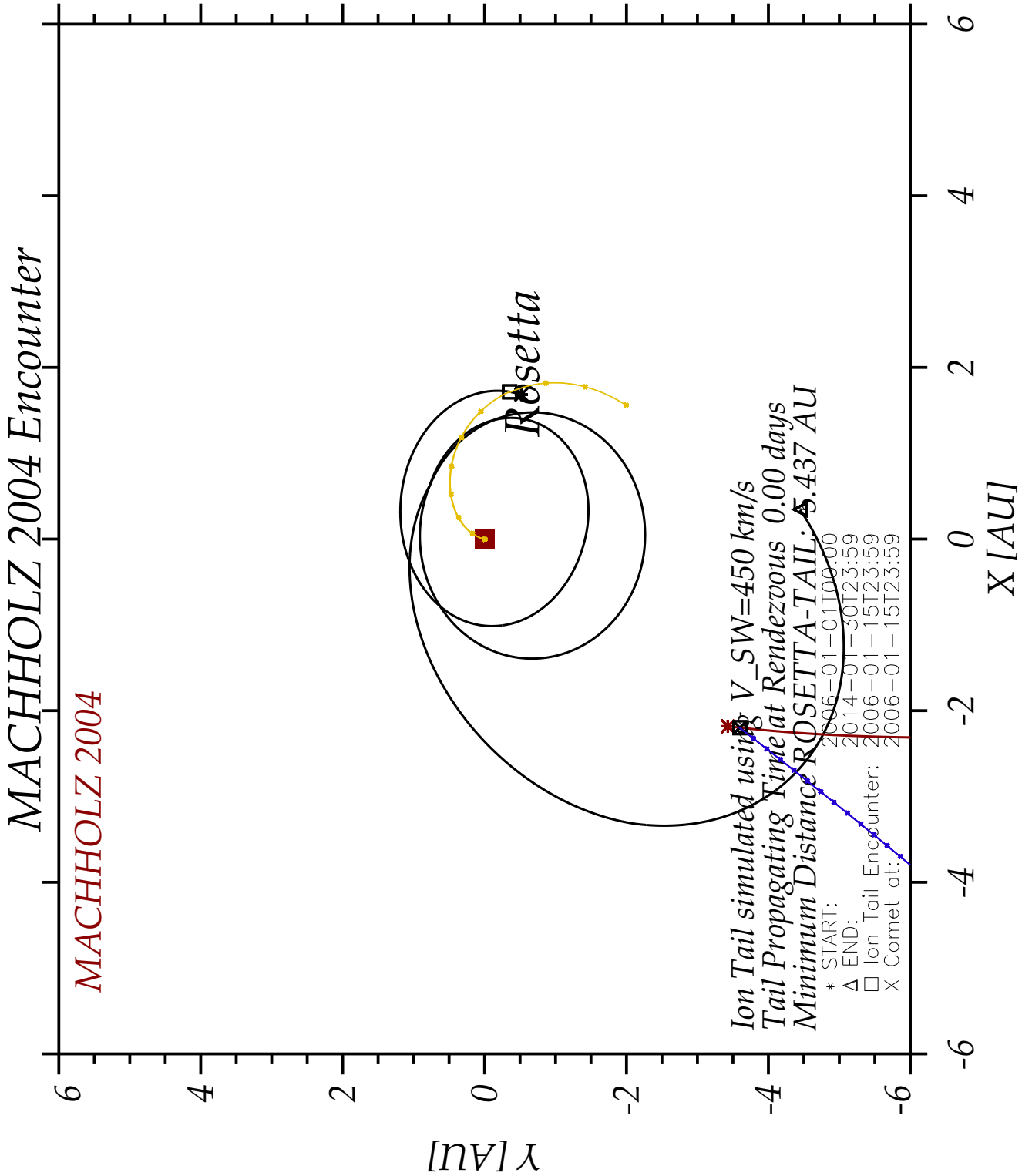


Figure 388: Overview: ROSETTA - MACHHOLZ 2004



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## 197 Comet MUELLER1998U2

<b>Comet: MUELLER1998U2</b>
<b>No Encounter below 0.2000AU</b>

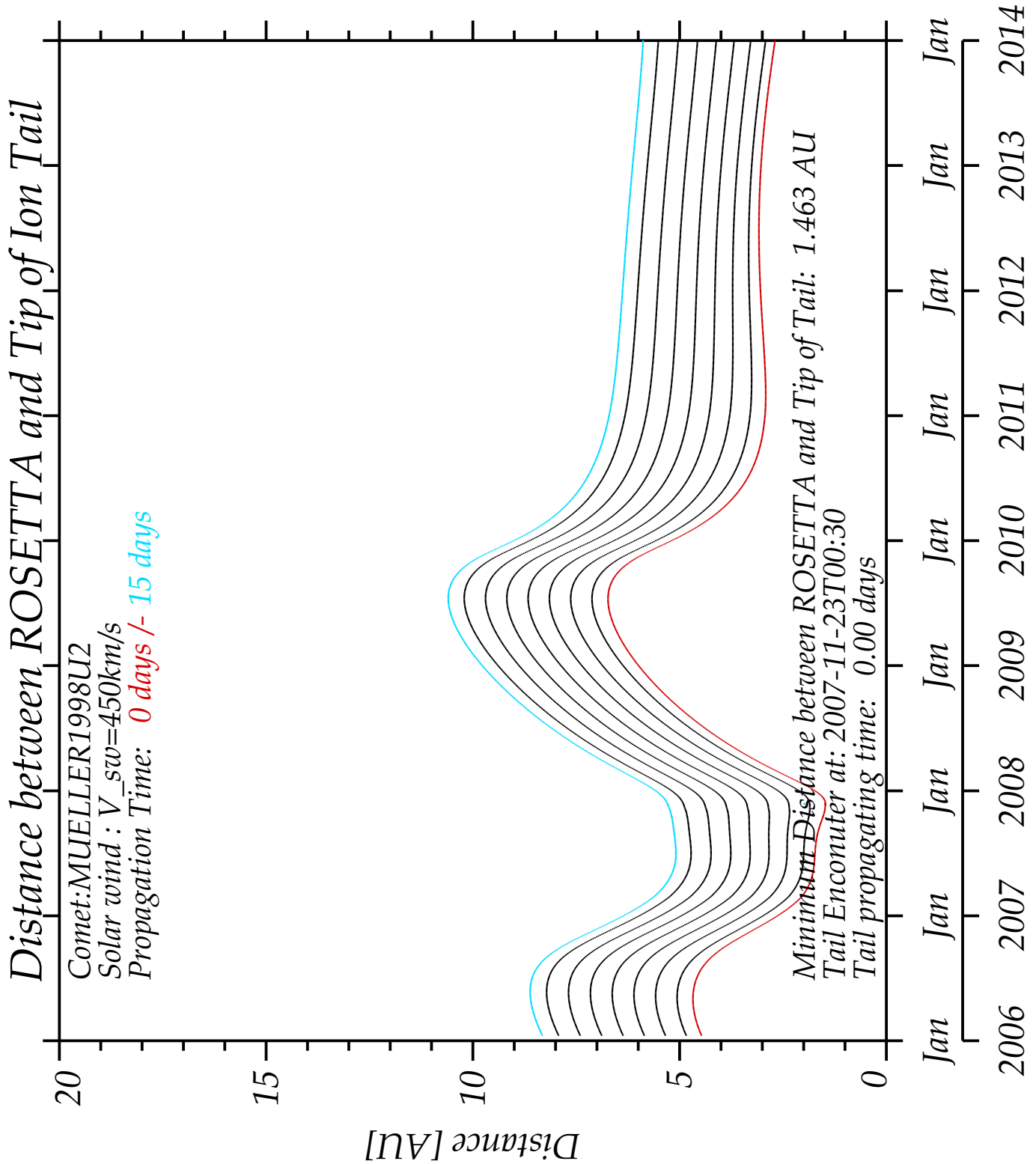


Figure 389: Minimum Distances: ROSETTA - MUELLER1998U2

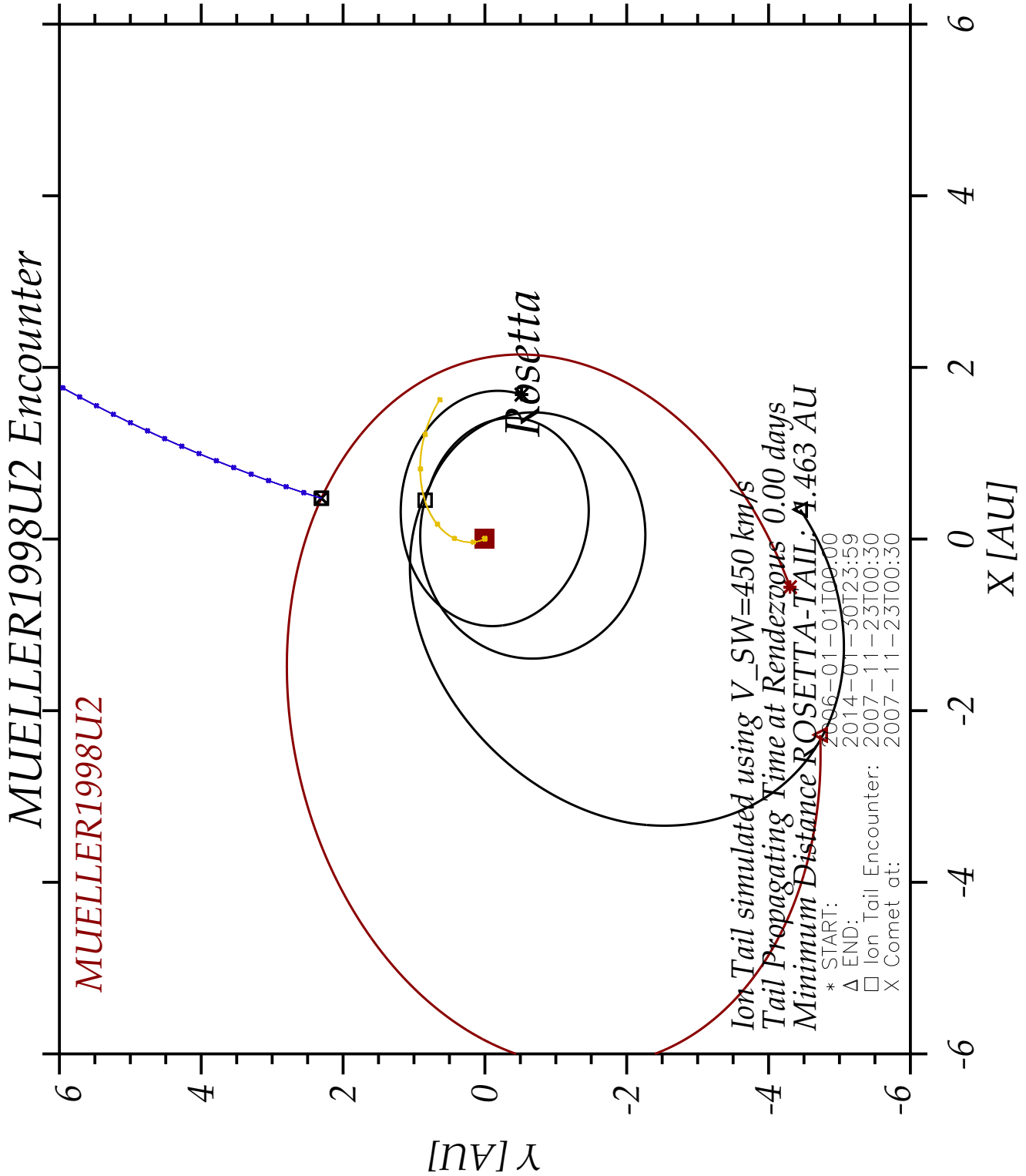


Figure 390: Overview: ROSETTA - MUELLER1998U2