Strawman Encke OpNav Strategy (Timeline format)
27 March 2002

Notes:

- TCMs at En–25d, En–3d & En–1d.
- Aimpoint: B•R = 0, B•T = –160 km (in EMO2000) based on expected Nav delivery error ellipse (En–1d) of 20x20 km 1-sigma. This is on the sunward side of the comet. (Note that placement of the CRISP sun shade might block outbound imaging for flyby on anti-sunward side.)
- Need to turn HGA to Earth to download opnavs.
- Opnavs will not work in rotisserie mode. Must be in 3-axis.
- No frame snipping. Instead, use either 256 x 256 or 512 x 512 pixel subframes, TBD.
- Need ability to uplink exposure times on a daily basis starting at En–10d.
- Each opnav opportunity may consist of more than 1 frame (e.g., at different exposures).
- In addition to astrometric observations, the opnav data will have photometric use; relative brightness between nucleus & coma, absolute nucleus brightness for exposure times for the next picture cycle, resolution of nucleus rotation light curve, etc. May be able to combine/coordinate with science.

Rotation period is 15 hours (want to cover 20 hours)

En–35d:	Deliver ground-based Encke ephemeris to support 1st onboard opnavs at En–30d and TCM at En–25d.
En–30d:	Begin 1/day opnavs to: (1) Acquire Encke if possible, (2) Exercise the system. Expected accuracy = 1 pixel until nucleus detection.
En–27d:	DCO (Data Cut Off) for En–25d TCM.
En–25d:	TCM to correct to updated comet ephemeris & current OD.
En–15d:	Update Encke ephemeris with ground data collected since En–35d.
En–10d:	Expected nucleus detection. Begin 2 opnavs/day, play down at least once per day. Expected accuracy = 0.25 pixel.
En–6d:	Final delivery of Encke ephemeris based on ground-based data.
En–6d:	Begin first opnav campaign between En–6 & En–4d (later is better): 1 opnav/hour for 20 hours, multiple frames per opnav. Coordinate with science desires & ops constraints.
En–4d:	DCO for En–3d TCM.
En–3d:	TCM corrects to aimpoint based on latest opnav data and latest ground-based ephemeris. This TCM is also insurance against failure of the En–1d TCM.
En–3d:	Begin second opnav campaign: 1 opnav/hour, multiple frames per opnav, until En–1.5d. Playdown NLT En–1.5d.
En–1.5d:	DCO for En–1d TCM. Expected error = 20 x 20 km, 1-sigma. End 2nd opnav campaign, begin 1 opnav per 2h.
En–1d:	TCM corrects for latest OD results. Also as a contingency in case of failure of the En–3d TCM. Execute only if correction needed is > 20 km in adverse direction.
En–12h:	DCO for knowledge delivery at En–6h.
En–6h:	Final knowledge delivery.
En–TBD:	Terminate taking of CFI data.
En+2d:	Preliminary reconstruction based on all data (including CRISP) to this point.