

Solar Wind Around Pluto

SWAP

PRINCIPAL INVESTIGATOR
Dave McComas, SwRI

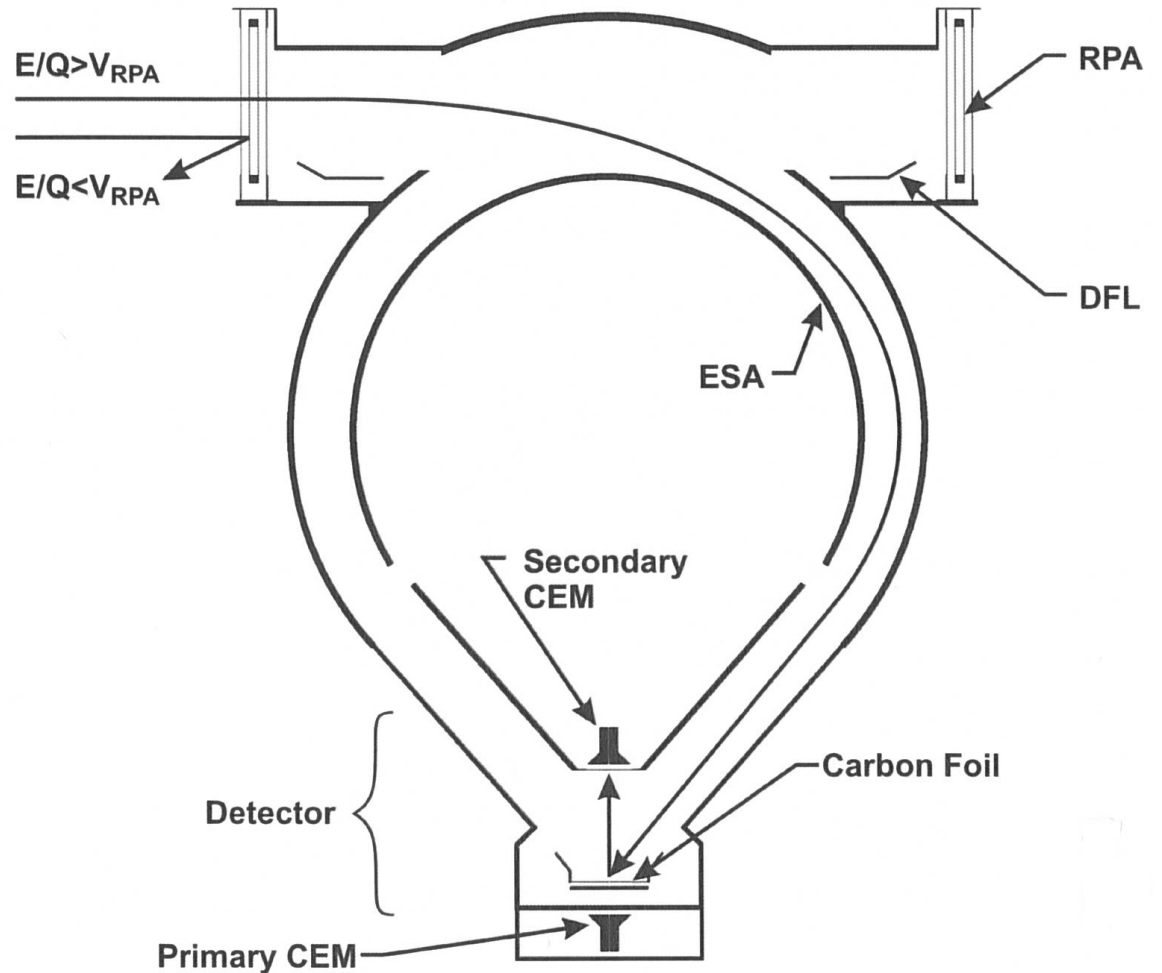
DESCRIPTION
Low Energy Plasma Instrument

ENERGY RANGE
30 eV - 7.7 keV

FIELD OF VIEW
270 deg x 10 deg
(deflection angles up to +15 deg)

ENERGY RESOLUTION
1 eV (< 2 keV); 9% (> 2 keV)

SPECIES
All Ions



New Horizons SWAP Data Sets

RAW ->

NH-X-SWAP-2-PLUTOCRUISE-V1.0

CALIBRATED ->

NH-X-SWAP-3-PLUTOCRUISE-V1.0

New Horizons SWAP Data Set Evaluation Tools

Staging and Evaluation -

Machine: Dell Precision T3400

Operating System: Fedora 18 linux

Data Processing -

Machine: Sun Ultra-350

Operating System: Sun Solaris OS 5.9

Minor Diagnostics -

Machine: IBM lenovo T60p ThinkPad

Operating System: openSUSE 10.2

Documentation Evaluation

NH-X-SWAP-2-PLUTOCRUISE-V1.0

NH-X-SWAP-3-PLUTOCRUISE-V1.0

aareadme.txt and document/aareadme_bu.txt

1 of 2

- ▶ Required Reading Summary List, CATALOG subdirectory, NH_TRAJECTORY.* does not exist. The text should be changed to refer to the proper trajectory file in the DOCUMENT directory.
- ▶ Required Reading Summary List, DOCUMENT subdirectory, PAYLOAD.* is named PAYLOAD_SSR.*
- ▶ Required Reading, Details, SOC Instrument Control Document, 2nd paragraph, 2nd line, the file "SOC_INST_ICD.DOC" is not in the DOCUMENT directory as claimed. This information can be found in the file "SOC_INST_ICD.PDF".

NH-X-SWAP-2-PLUTOCRUISE-V1.0

NH-X-SWAP-3-PLUTOCRUISE-V1.0

aareadme.txt and document/aareadme_bu.txt

2 of 2

- ▶ Volume Contents, under DOCUMENT list, the files QUAT_ZXYZ_J2K_TO_INSTR.LBL and QUAT_ZXYZ_J2K_TO_INSTR.ASC do not exist. (FYI-The files QUAT_AXYZ_INSTR_TO_J2K.LBL and QUAT_AXYZ_INSTR_TO_J2K.ASC exist in that directory. The project should consider changing the extension from “ASC” to “TXT”.)

NH-X-SWAP-2-PLUTOCRUISE-V1.0
NH-X-SWAP-3-PLUTOCRUISE-V1.0
catalog/personnel.cat

- ▶ Contact information for Alan Stern is not correct.

NH-X-SWAP-2-PLUTOCRUISE-V1.0
NH-X-SWAP-3-PLUTOCRUISE-V1.0
catalog/ref.cat – 1 of 2

- ▶ Unable to locate the following reference, so it was sent to the SwRI library to locate:

OBJECT = REFERENCE

REFERENCE_KEY_ID = "ASMAR&HERRERA1993"

REFERENCE_DESC = "Asmar, S.W., and R.G. Herrera, Radio Science Handbook, JPL D-7938, Vol. 4 Jet Propulsion Laboratory, Pasadena, CA 1993."

END_OBJECT = REFERENCE

Response back was its access was limited and access controlled under ITAR. So why is this reference included within the PDS archive? Why isn't there a non-ITAR version published which can be referenced?

NH-X-SWAP-2-PLUTOCRUISE-V1.0
NH-X-SWAP-3-PLUTOCRUISE-V1.0
catalog/ref.cat – 2 of 2

- Unable to locate the following reference, so it was sent to the SwRI library to locate:

```
OBJECT          = REFERENCE
REFERENCE_KEY_ID = "LUNINEETAL1995"
REFERENCE_DESC   = "Lunine, J. I., et al., Report of the Pluto-Kuiper Express
Science Definition Team (NASA, unpublished), 1995."
END_OBJECT      = REFERENCE
```

Response back was that the SwRI library could not locate this reference. So why is this reference included within the PDS archive? Why is any inaccessible reference included in the NASA reference catalog?

NH-X-SWAP-2-PLUTOCRUISE-V1.0
NH-X-SWAP-3-PLUTOCRUISE-V1.0
catalog/swap.cat

- ▶ Under OPERATIONAL MODES, the text states
“The SWAP instrument uses seven modes:
OFF; BOOT; LVENG; LVSCI; HVENG; HVSCI.”
Why are only six of the seven modes listed?

NH-X-SWAP-2-PLUTOCRUISE-V1.0
NH-X-SWAP-3-PLUTOCRUISE-V1.0
document/docinfo.txt

- ▶ SWAP_CAL.ASC and SWAP_CAL.DOC not included in the DOCUMENT directory as stated.

NH-X-SWAP-2-PLUTOCRUISE-V1.0
NH-X-SWAP-3-PLUTOCRUISE-V1.0
document/soc_inst_icd.pdf – 1 of 2

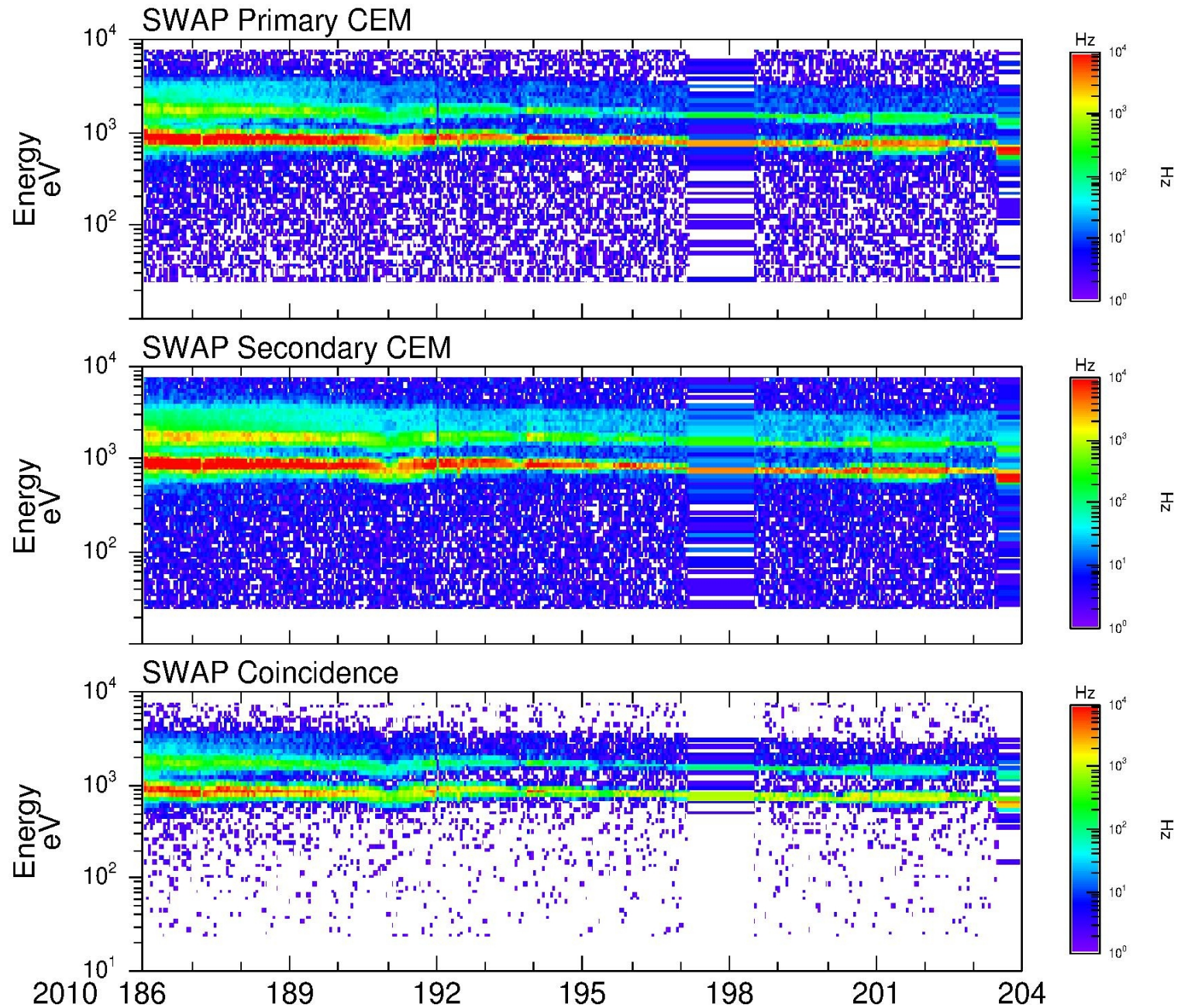
- ▶ Section 14.6 Operations: Although not explicitly stated, the RPA use restricts the lower energy limit of ions allowed into the deflection region. When the RPA is active, a narrower energy range of ions passes through the ESA which produces a smaller amount of ion impacts the sensor than when the RPA is off and the amount of ions which impact the sensor is determined by the full energy width of the ESA. So this is a way of controlling the number of ions impacting the sensor. The sensitivity of SWAP to an ion does not really change. This should be made clear.

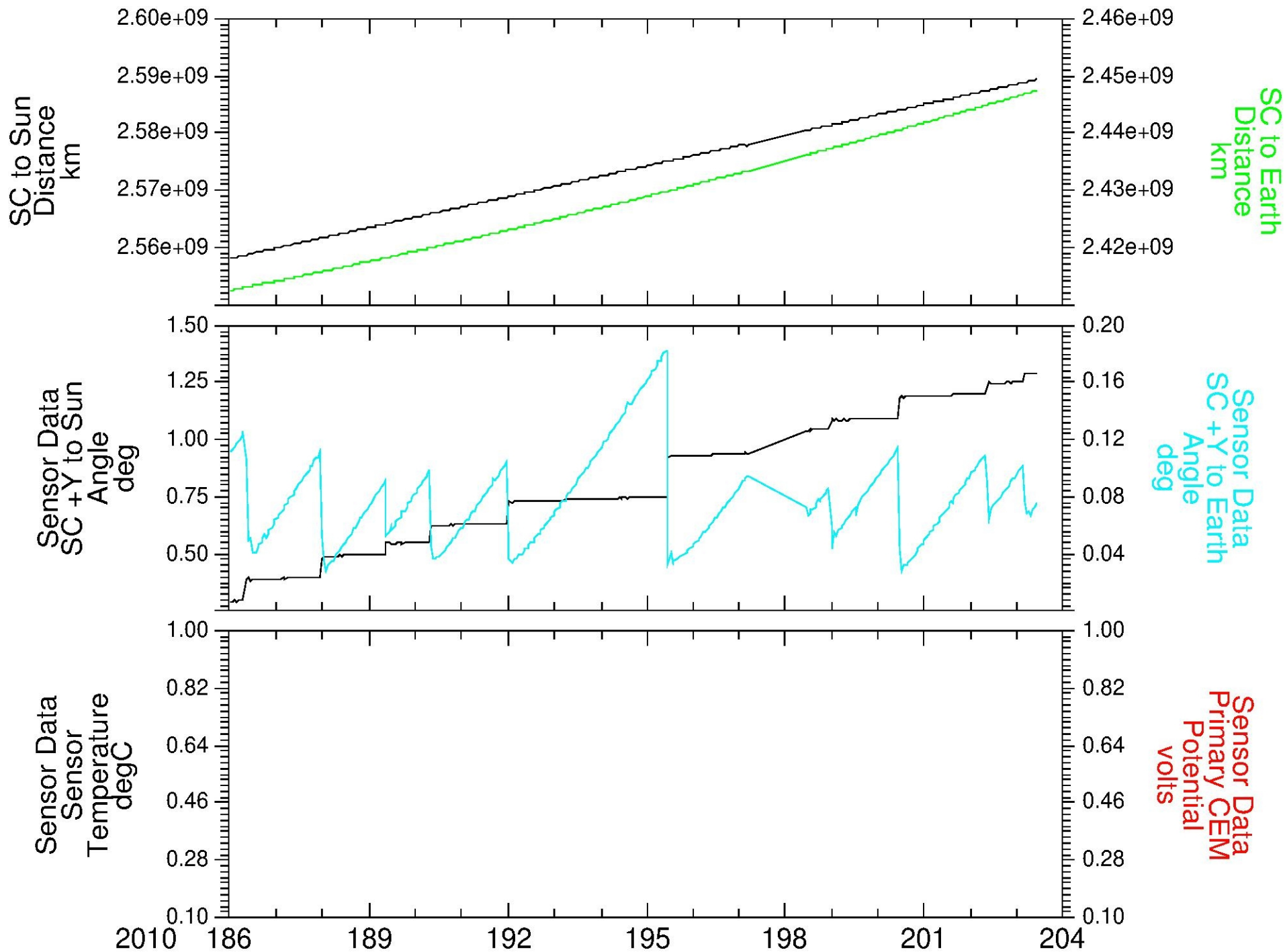
NH-X-SWAP-2-PLUTOCRUISE-V1.0
NH-X-SWAP-3-PLUTOCRUISE-V1.0
document/soc_inst_icd.pdf – 2 of 2

- ▶ Section 14.7 Observation Examples, page 143, 5th line, “when SWAP was collecting observations, in Error: Reference source not found we show an overview of”. It seems there there is supposed to be a reference and the word processing program discovered an error. Please fix.
- ▶ Sections 14.10.4 on additional keywords, 14.10.8 on memory required, 14.10.10 on predicted file size, and 14.10.13 on maintenance schedule are all blank. Is this on purpose?

Data Evaluation

SWAP Science





Back-Up Slides

NH-X-SWAP-2-PLUTOCRUISE-V1.0
NH-X-SWAP-3-PLUTOCRUISE-V1.0
catalog/catinfo.txt

GOOD

NH-X-SWAP-2-PLUTOCRUISE-V1.0
NH-X-SWAP-3-PLUTOCRUISE-V1.0
catalog/nh.cat

GOOD

NH-X-SWAP-2-PLUTOCRUISE-V1.0
NH-X-SWAP-3-PLUTOCRUISE-V1.0
catalog/nhsc.cat

GOOD

NH-X-SWAP-2-PLUTOCRUISE-V1.0
NH-X-SWAP-3-PLUTOCRUISE-V1.0
catalog/dataset.cat

GOOD

NH-X-SWAP-2-PLUTOCRUISE-V1.0
NH-X-SWAP-3-PLUTOCRUISE-V1.0
document/soc_inst_icd.lbl

GOOD

NH-X-SWAP-2-PLUTOCRUISE-V1.0

NH-X-SWAP-3-PLUTOCRUISE-V1.0

document/nh_fov.lbl

document/nh_fov.png

GOOD

NH-X-SWAP-2-PLUTOCRUISE-V1.0

NH-X-SWAP-3-PLUTOCRUISE-V1.0

document/nh_met2utc.lbl

document/nh_met2utc.tab

GOOD

NH-X-SWAP-2-PLUTOCRUISE-V1.0
NH-X-SWAP-3-PLUTOCRUISE-V1.0
document/nh_mission_trajectory.tbl
document/nh_mission_trajectory.tab

GOOD

NH-X-SWAP-2-PLUTOCRUISE-V1.0
NH-X-SWAP-3-PLUTOCRUISE-V1.0
document/nh_swap_v100_ti.txt

GOOD

NH-X-SWAP-2-PLUTOCRUISE-V1.0

NH-X-SWAP-3-PLUTOCRUISE-V1.0

document/nh_trajectory.tbl

document/nh_trajectory.tab

GOOD

NH-X-SWAP-2-PLUTOCRUISE-V1.0

NH-X-SWAP-3-PLUTOCRUISE-V1.0

document/payload_ssr.lbl

document/payload_ssr.pdf

GOOD

NH-X-SWAP-2-PLUTOCRUISE-V1.0
NH-X-SWAP-3-PLUTOCRUISE-V1.0
document/quat_axyz_instr_to_j2k.lbl
document/quat_axyz_instr_to_j2k.asc

GOOD

NH-X-SWAP-2-PLUTOCRUISE-V1.0
NH-X-SWAP-3-PLUTOCRUISE-V1.0
All Files Under Directory
DOCUMENT/DATA_SUMMARY_PLOTS

GOOD

NH-X-SWAP-2-PLUTOCRUISE-V1.0
NH-X-SWAP-3-PLUTOCRUISE-V1.0
calib/calinfo.txt

GOOD

NH-X-SWAP-2-PLUTOCRUISE-V1.0
NH-X-SWAP-3-PLUTOCRUISE-V1.0
calib/background_009_dac_jup.lbl
calib/background_009_dac_jup.tab

GOOD

NH-X-SWAP-2-PLUTOCRUISE-V1.0
NH-X-SWAP-3-PLUTOCRUISE-V1.0
calib/background_009_dac.tbl
calib/background_009_dac.tab

GOOD

NH-X-SWAP-2-PLUTOCRUISE-V1.0
NH-X-SWAP-3-PLUTOCRUISE-V1.0
calib/esa_rpa_v19_energy_binsf.tbl
calib/esa_rpa_v19_energy_binsf.tab

GOOD

NH-X-SWAP-2-PLUTOCRUISE-V1.0

NH-X-SWAP-3-PLUTOCRUISE-V1.0

calib/esa_shape.lbl

calib/esa_shape.tab

GOOD

NH-X-SWAP-2-PLUTOCRUISE-V1.0

NH-X-SWAP-3-PLUTOCRUISE-V1.0

calib/fov_mask_2d.tbl

calib/fov_mask_2d.tab

GOOD

NH-X-SWAP-2-PLUTOCRUISE-V1.0
NH-X-SWAP-3-PLUTOCRUISE-V1.0
calib/list_energy_files.lbl
calib/list_energy_files.tab

GOOD

NH-X-SWAP-2-PLUTOCRUISE-V1.0

NH-X-SWAP-3-PLUTOCRUISE-V1.0

calib/rpa_shape.lbl

calib/rpa_shape.tab

GOOD

NH-X-SWAP-2-PLUTOCRUISE-V1.0
NH-X-SWAP-3-PLUTOCRUISE-V1.0
index/indxinfo.txt

GOOD

NH-X-SWAP-2-PLUTOCRUISE-V1.0

NH-X-SWAP-3-PLUTOCRUISE-V1.0

index/checksum.lbl

index/checksum.tab

GOOD

NH-X-SWAP-2-PLUTOCRUISE-V1.0

NH-X-SWAP-3-PLUTOCRUISE-V1.0

index/index.lbl

index/index.tab

GOOD

NH-X-SWAP-2-PLUTOCRUISE-V1.0

NH-X-SWAP-3-PLUTOCRUISE-V1.0

index/slimindx.lbl

index/slimindx.tab

GOOD