Sea Surface Temperature - Pathfinder CDR Data Flow Diagram

CDRP-DIA-0277
Rev 2 6/23/2016

CLASS L1B orbit files
e.g. NSS.GHRR.NN.D10291.S0032.E0217.B2787677.GC

Ephemeris and Clock correction LUT

ACISEG Module - Scan L1B file to determine how best to break orbit file into smaller segments/granules
→ Start /end scan line for a segment
Filename: <YYYYDDDhhmmss>.inp
~6 output files per Class L1b orbit file

ACI Module - Unpack and ingest L1b file. Split the file into ~ 6 granules and determine pixel geo-location and viewing geometry
→ Segmented CLASS L1B: ~96 segments per data-day ~6 segments per Class file with 2 files per segment data files:
YYYYDDDhhmmss.L1B.hdf
Geo files: YYYYDDDhhmmss.geo.hd

Algorithm coefficients for SST
Reference field: DOISST v2 avhrr-only-v2pfv52. YYYYMMDD.nc
Non-linear IR calibration
NCEP reanalysis: vwind.YYYY.nc uwind.YYYY.nc

L2gen_both Module - Level 1 to Level 2 generation. Apply calibration and convert counts to radiance, calculate SST and pixel quality
→ L2 file: YYYYDDDhhmmss.<SAT>.L2_GAC.hdf
~6 files per orbit 14 to 16 orbits per data day

Script: avprc-orb controls ingest-> L2Bin
L1b Class files to process command lines for aciseg, aci, L2gen, L2bin, L3bin->orbit

L2bin_both Module
Spatial bin swath data into equal area 4km grid
Next steps repeated at ¼ deg for quick look QC up to final HDF
→ L3 file from binned 4-km L2 file:
YYYYDDD.b<res><day/night>-pf<ver>ap-<SAT>-sst.hdf
→ Keep Mapped QC HDF file at ¼ deg <res>=qd

L3bin Module - STEP 1. space binned L2 swaths re-combined bac to single orbit files for the data-day eg. 14-16 space binned orbits
→ Temporary bin orbit files
~16 day or night orbits files per data day
YYYYDDDhhmmss.b<res>o<day/night>-pf<ver>ap-<SAT>.hdf

L3bin Module - script: avhprc-orb list of orbits to bin
STEP2. Bin pixels into data-day for daytime or night. Assemble data day by combining different orbits from today, additional pieces from previous and next days' orbits. See CATB definition of data-day
→ L3 binned file 1 file per day or night data day
YYYYDDD.b<res><day/night>-pf<ver>ap.<SAT>-sst.hdf

Script: avhprc-dday controls L3 binning and mapping provides L3bin and SMIgen command line arguments and list of L2 files to time bin into orbits and then into data-days and list of L3 files to map

SMIgen_both Module - Generate Standard Map Image observations convert equal area to equal angle map.
→ Mapped file: 3 maps per L3 bin file 1 parameter per file
YYYYDDD.i<res><day/night>-pf<ver>ap-<SAT>-<par>.hdf

Wind:
uwnd.10m.gauss.YYYY.nc and vwnd.10m.gauss.YYYY.nc.
Ice:
ice_conc_polstere-100_reproc_YYYYMMDDHHmm.nc Or YYYYMMDD-NCDC-L4LRblendGLOB-v01-fv02_0-AVHRR_OI.ncYYY.nc
Aerosol:
aerosol_optical_thickness.aero100.interp.YYYYwWW.dat or aerosol_optical_thickness.avhrrpf.inter p.YYYYMM.dat where YYYY=year, WW=week, MM=month, DD=date

Save to disk for NCEI post processing
Mapped file: 3 maps per L3 bin file 1 parameter per file YYYYDDD.i<res><day/night>-pf<ver>ap-<SAT>-<par>.hdf

Save to disk for NCEI post processing
L2 file: YYYYDDDhhmmss.<SAT>.L2_GAC.hdf
~6 files per orbit 14 to 16 orbits per data day

hdf2nc_PFV53_L3C Module - NCEI post processing for converting L HDF to GHRSST L3C netCDF.
→ NetCDF file <date><time><RDAC><processing level>_GHSST-<SST Type>-<character string>-<additional segregator>-v<GDS Version>-fv<File Versions>.<file type>
e. g. 19811230160746-NCEI-L3C_GHRSST-SSTskin-AVHRR_Pathfinder-PFV5.3_NOAA07_G_1981364_day-v02.0-fv01.0.nc

hdf2nc_PFV53_L3U Module - NCEI post processing for converting L2P HDF to GHRSST L3U netCDF.
→ NetCDF file <date><time><RDAC><processing level>_GHSST-<SST Type>-<character string>-<additional segregator>-v<GDS Version>-fv<File Versions>.<file type>
e. g. 19811112232240-NCEI-L3U_GHRSST-SSTskin-AVHRR_Pathfinder-PFV5.3_NOAA07_G_day-v02.0-fv01.0.nc

NCEI Pathfinder SST GHRSST standardization post processing

hdf2nc_PFV53_L2P Module - NCEI post processing for converting L2P HDF to GHRSST L2P netCDF.
→ NetCDF file <date><time><RDAC><processing level>_GHSST-<SST Type>-<character string>-<additional segregator>-v<GDS Version>-fv<File Versions>.<file type>
e. g. 19811121231858-NCEI-L2P_GHRSST-SSTskin-AVHRR_Pathfinder-PFV5.3_NOAA07_G-SST_s2318_e0009-v02.0-fv01.0.nc

Save to disk for NCEI archiving
e.g.
L3C:19811230160746-NCEI-L3C_GHRSST-SSTskin-AVHRR_Pathfinder-PFV5.3_NOAA07_G_1981364_day-v02.0-fv01.0.nc
L3:19811112232240-NCEI-L3U_GHRSST-SSTskin-AVHRR_Pathfinder-PFV5.3_NOAA07_G_day-v02.0-fv01.0.nc
L2P:19811121231858-NCEI-L2P_GHRSST-SSTskin-AVHRR_Pathfinder-PFV5.3_NOAA07_G-SST_s2318_e0009-v02.0-fv01.0.nc

Legend

- Functional /control scripts
- Process modules Description / example
- Final input/output files
- Look-up tables
- Intermediate files
- Ancillary files