1) **SEAFLUXNN_DiurnalSST**: Code to calculate peak diurnal warming for sea surface temperature (dSST) from the neural network (NN). Inputs to the NN are daily-averaged wind speed, daily-accumulated rain rate, solar radiation, length of day from sunrise and sunset times, and sea surface temperature. dSST are produced for each day on the same 0.25° x 0.25° grid as used of the SeaFlux OSB CDR.

2) **SEAFLUXNN_SST**: Code to calculate diurnally-varying sea surface temperature. dSST from step one are compared across four days—two days before and one day after the sample day—superimposing the diurnal cycle onto the foundation SST. Sunrise and sunset times are taken into account along with dSST from the first processing step and SST from satellite observations. Output are the final CDR files for SST in NetCDF using the same spatial and temporal sampling as SeaFlux OSB CDR files: 3-hourly for each day and 0.25° x 0.25° grid.

**NOTE**: Quality control measures are enacted to remove nonphysical values.
1) SEAFLUXNN_DiurnalSST

- Diurnal SST Neural Network (nnDiurnalSST.mat)
- NOAA L4 AVHRR Data (e.g. avhrr-only-v2.$$_.nc)
- SST
- Wind Speed – SeaFlux OSB CDR Files (e.g. SEAFLUX-OSB-CDR_V02R00_ATMOS_D$$_C$.nc)
- Daily Peak Solar Radiation
- Sunrise Sunset Times (SunriseSunset.nc)
- Calculate Length of Day (Sunrise to Sunset)
- Rain Rate – HOAPS Data (e.g. PREic$$GL.nc) or GPCP Data (e.g. gpcp_1dd_v1.2_p1d.$$)
- Solar Radiation – GEWEX Data (e.g. srb_rel3.0_shorwave_3hrly_$$_.nc) or CERES Data

NOTE: output files include peak diurnal warming for each day on the 0.25° x 0.25° SeaFlux OSB grid.

NOTE: HOAPS data are used for Jan-1988 through Sep-1996; GPCD data are used thereafter.
NOTE: GEWEX data are used for Jan-1988 through Feb-2000; CERES data are used thereafter – Syn1deg product when available and FLASHFlux when not.
2) SEAFLUXNN_SST

NOTE: an SST profile is compiled for each day of the data record and includes peak diurnal warming (from step 1 above), SST (from AVHRR observations), and sunrise and sunset times.

NOTE: data are repeated at the edges of the temporal record as needed to generate a self-contained and complete data record.

Each location is classified as one of 16 cases based on sunlight characteristics.

SST is modeled across four days (t-2 to t+1) using a two day window extending from sunrise to sunrise for each day (t) of the temporal record.

NOTE: output files include flag denoting land, snow or ice, lake, or failure to resolve SST.