Salinity Validation Data System (SVDS)

-Satellite data validated with in situ observations

Satellite data:

SMAP (Soil Moisture Active Passive) V4.0 and V5.0
SMOS (Soil Moisture and Ocean Salinity) V662 and V700

In situ data:

Argo EN4.2.2
(All the QC flags are applied for validation)

Paths and Filenames:

-**Pathname:** /files/data/SVDS/Level/*SatelliteName*/*Version*

-**Filename:** matchup_*Sat_Version_Level_datevec*.nc

Sat_Version = name of the satellite with version number
Level = satellite data Level (L2 or L3)
datevec = date vector in *yyyymmdd for L2 and yyyymm for L3*

Matchup method:

Level 2

-All in box: Centered on the *in situ* data, all the satellite footprints falling in the +-3.5 day box and within 50 km searching radius are averaged for comparisons.

-**Closest point of approach (CPA):** The closest satellite footprint to the in situ data within +-3.5 days.

Level 3

-All in box: For each grid point on SMAP L3 maps, all the in situ observations falling in the +-3.5 day box and within 50 km searching radius are averaged for comparisons.

Data variables:

Level 2

-in situ

match_insitulat: latitude of in situ data [-90:90]
match_insitulon: longitude of in situ data [-180:180]
match_insituS: in situ salinity data. Units: PSU
match_insituT: in situ temperature data. Units: Celsius
match_insitutime: time observed of in situ data since 2000-01-01 00:00:00 UTC.
match_insitudepth: depth observed of in situ data. Units: m
match_insitu_platformnum: platform number of the Argo data

-SMAP
match_smapS50: SMAP salinity matchup with all-in-box method
match_smapcpa: SMAP salinity matchup with cpa method
match_smaplat: latitude of the SMAP cpa footprint
match_smaplon: longitude of the SMAP cpa footprint
match_icef: sea ice fraction weighted by antenna gain pattern [0:1]
match_landf: land fraction weighted by antenna gain pattern [0:1]
anc_sss: reference salinity from HYCOM at cpa
anc_sst: ancillary temperature data from Canadian Meteorological Center at cpa. Units: Kelvin
anc_windspeed: ancillary surface wind speed data from CCMP V2.0. Units: m/s
anc_precip: ancillary rain rate from IMERG resampled to SMAP spatial resolution (40 km). Units: mm/h

-SMOS
match_smosS50: SMOS salinity matchup with all-in-box method
match_smoscpa: SMOS salinity matchup with cpa method
match_smoslat: latitude of the SMOS cpa footprint
match_smoslon: longitude of the SMOS cpa footprint

Level 3

-in situ
argo_sss: Argo first layer salinity averaged within the search box. Units: PSU
argo_std: standard deviation of all Argo salinity observations within search box

-SMAP
latitude: latitude of the SMAP grid cell
longitude: longitude of the SMAP grid cell
match_smap_40km: SMAP salinity at 40 km resolution
match_smap_70km: SMAP salinity at 70 km resolution
smap_icef: sea ice fraction weighted by antenna gain pattern [0:1]
smap_landf: land fraction weighted by antenna gain pattern [0:1]
anc_sss: reference salinity from HYCOM
anc_sst: ancillary temperature data from Canadian Meteorological Center. Units: Kelvin
smap_sss_unc: estimated empirical uncertainty of SMAP sea surface salinity smoothed to approx 70km resolution (only available for V5)

Reference:
NASA/RSS SMAP Salinity: Version 5.0 Validated Release
chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://data.remss.com/smap/SSS/V05.0/documents/SMAP_NASA_RSS_Salinity_Release_V5.0.pdf