

```
netcdf pimep-mdb_satelliteID_drifter_TIMEID_v02 {
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```
dimensions:
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```
    TIME_DRIFTER = 199 ;  
    N_DAYS_ASCAT = 10 ;  
    N_3H_CMORPH = 80 ;  
    N_6H_CCMP = 40 ;  
    N_30Min_IMERG = 12 ;  
    TIME_Satellite = UNLIMITED ; // (1 currently)
```

```
variables:
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```
float DATE(TIME_DRIFTER) ;  
    :long_name = "Date of drifter" ;  
    :units = "days since 1990-01-01 00:00:00" ;  
    :standard_name = "time" ;  
    :_FillValue = -999.f ;
```

```
float LATITUDE(TIME_DRIFTER) ;  
    :long_name = "Latitude of drifter" ;  
    :units = "degrees_north" ;  
    :valid_min = -90. ;  
    :valid_max = 90. ;  
    :standard_name = "latitude" ;  
    :_FillValue = -999.f ;
```

```
float LONGITUDE(TIME_DRIFTER) ;  
    :long_name = "Longitude of drifter" ;  
    :units = "degrees_east" ;  
    :valid_min = -180. ;  
    :valid_max = 180. ;  
    :standard_name = "longitude" ;  
    :_FillValue = -999.f ;
```

```
float SSS(TIME_DRIFTER) ;  
    :long_name = "Drifter SSS" ;  
    :units = "1" ;  
    :salinity_scale = "Practical Salinity Scale(PSS-78)" ;  
    :standard_name = "sea_water_salinity" ;  
    :_FillValue = -999.f ;
```

```
float SST(TIME_DRIFTER) ;  
    :long_name = "Drifter SST" ;  
    :units = "degree Celsius" ;  
    :standard_name = "sea_water_temperature" ;  
    :_FillValue = -999.f ;
```

```
float SSS_Filtered(TIME_DRIFTER);  
    :long_name = "Drifter SSS median filtered at satellite product resolution";
```

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:units = "1";
:salinity_scale = "Practical Salinity Scale (PSS-78)";
:standard_name = "sea_water_salinity";
:_FillValue = -999.0f;

float SST_Filtered(TIME_DRIFTER);
:long_name = "Drifter SST median filtered at satellite product resolution";
:units = "degree Celsius";
:standard_name = "sea_water_temperature";
:_FillValue = -999.0f;

float DISTANCE_TO_COAST(TIME_DRIFTER) ;
:long_name = "Distance to coasts at drifter location" ;
:units = "km" ;
:_FillValue = -999.f ;

float PLATFORM_NUMBER(TIME_DRIFTER) ;
:long_name = "Drifter unique identifier" ;
:conventions = "WMO float identifier : A9IIIII" ;
:units = "1" ;
:_FillValue = -999.f ;

float DATE_Satellite_product(TIME_Satellite) ;
:long_name = "Central time of satellite SSS file" ;
:units = "days since 1990-01-01 00:00:00" ;
:standard_name = "time" ;

float LATITUDE_Satellite_product(TIME_DRIFTER) ;
:long_name = "Satellite product latitude at drifter location" ;
:units = "degrees_north" ;
:valid_min = -90. ;
:valid_max = 90. ;
:standard_name = "latitude" ;
:_FillValue = -999.f ;

float LONGITUDE_Satellite_product(TIME_DRIFTER) ;
:long_name = "Satellite product longitude at drifter location" ;
:units = "degrees_east" ;
:valid_min = -180. ;
:valid_max = 180. ;
:standard_name = "longitude" ;
:_FillValue = -999.f ;

float SSS_Satellite_product(TIME_DRIFTER) ;
:long_name = "Satellite product SSS at drifter location" ;
:units = "1" ;
:salinity_scale = "Practical Salinity Scale(PSS-78)" ;
:standard_name = "sea_surface_salinity" ;
:_FillValue = -999.f ;

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float SST_Satellite_product(TIME_DRIFTER) ;
    :long_name = "Satellite product SST at drifter location" ;
    :units = "degree Celsius" ;
    :standard_name = "sea_surface_temperature" ;
    :_FillValue = -999.f ;

float Spatial_lags(TIME_DRIFTER) ;
    :long_name = "Spatial lag between drifter location and satellite SSS product pixel center"
;
    :units = "km" ;
    :_FillValue = -999.f ;

float Time_lags(TIME_DRIFTER) ;
    :long_name = "Temporal lag between drifter time and satellite SSS product central time" ;
    :units = "days" ;
    :_FillValue = -999.f ;

float ROSSBY_RADIUS(TIME_DRIFTER) ;
    :long_name = "Baroclinic Rossby radius of deformation (Chelton et al., 1998) at drifter
location" ;
    :units = "km" ;
    :_FillValue = -999.f ;

float WIND_SPEED_ASCAT_daily(TIME_DRIFTER) ;
    :long_name = "Daily ASCAT wind speed module at drifter location" ;
    :units = "m/s" ;
    :_FillValue = -999.f ;

float WIND_SPEED_ASCAT_10_prior_days_wind(TIME_DRIFTER, N_DAYS_ASCAT) ;
    :long_name = "Prior 10 days time series of ASCAT wind speed module at drifter location"
;
    :units = "m/s" ;
    :_FillValue = -999.f ;

float RAIN_RATE_CMORPH_3h(TIME_DRIFTER) ;
    :long_name = "3-hourly CMORPH rain rate at drifter location" ;
    :units = "mm/3h" ;
    :source = "ftp://ftp.cpc.ncep.noaa.gov/precip/CMORPH\_V1.0/CRT/0.25deg-3HLY/";
    :_FillValue = -999.f ;

float RAIN_RATE_CMORPH_10_prior_days(TIME_DRIFTER, N_3H_CMORPH) ;
    :long_name = "Prior 10 days times series of 3-hourly CMORPH Rain Rate at drifter loca-
tion" ;
    :units = "mm/3h" ;
    :_FillValue = -999.f ;

float RAIN_RATEIMERG_30min(TIME_DRIFTER);
    :long_name = "30-Minutes IMERG rain rate at drifter location";

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:units = "mm/h";
:reference = "Huffman et al., 2019. NASA Global Precipitation Measurement (GPM) Integrated Multi-satellite Retrievals for GPM (IMERG) Version 6, LATE RUN, 30-minutes, NASA";
:source = "http://dx.doi.org/10.5067/GPM/IMERG/3B-HH/06";
:_FillValue = -999.0f;

float RAIN_RATE_IMERG_6_prior_hours(TIME_DRIFTER, N_30Min_IMERG);
:long_name = "Prior 6 hours times series of 30-Minutes IMERG Rain Rate at drifter location";
:units = "mm/h";
:reference = "Huffman et al., 2019. NASA Global Precipitation Measurement (GPM) Integrated Multi-satellite Retrievals for GPM (IMERG) Version 6, LATE RUN, 30-minutes, NASA";
:source = "http://dx.doi.org/10.5067/GPM/IMERG/3B-HH/06";
:_FillValue = -999.0f;

float SSS_WOA18(TIME_DRIFTER) ;
:long_name = "Monthly WOA 2018 (DECAV-1deg) SSS (0m depth) at drifter location" ;
:units = "1" ;
:salinity_scale = "Practical Salinity Scale (PSS-78)" ;
:standard_name = "sea_surface_salinity" ;
:_FillValue = -999.f ;

float SSS_STD_WOA18(TIME_DRIFTER) ;
:long_name = "Monthly WOA 2018 (DECAV-1deg) SSS STD (0m depth) at drifter location" ;
;
:units = "1" ;
:_FillValue = -999.f ;

float SSS_WOA23(TIME_DRIFTER) ;
:long_name = "WOA 2023 (DECAV91CO-1deg) SSS (0m depth) at drifter location" ;
:units = "1" ;
:salinity_scale = "Practical Salinity Scale(PSS-78)" ;
:standard_name = "sea_surface_salinity" ;
:_FillValue = -999.f ;

float SSS_STD_WOA23(TIME_DRIFTER) ;
:long_name = "WOA 2013 (DECAV91CO-1deg) SSS STD (0m depth) at drifter location" ;
;
:units = "1" ;
:_FillValue = -999.f ;

float SSS_WOA23_025(TIME_DRIFTER) ;
:long_name = "WOA 2023 (DECAV91CO-0.25deg) SSS (0m depth) at drifter location" ;
:units = "1" ;
:salinity_scale = "Practical Salinity Scale(PSS-78)" ;
:standard_name = "sea_surface_salinity" ;
:_FillValue = -999.f ;

float SSS_STD_WOA23_025(TIME_DRIFTER) ;

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:long_name = "WOA 2013 (DECAV91CO-0.25deg) SSS STD (0m depth) at drifter location
";
:units = "1" ;
:_FillValue = -999.f ;

float SSS_ISAS(TIME_DRIFTER) ;
:long_name = "ISAS SSS (5m depth) at drifter location" ;
:units = "1" ;
:salinity_scale = "Practical Salinity Scale(PSS-78)" ;
:standard_name = "sea_water_salinity" ;
:source = "https://doi.org/10.17882/46219" ;
:_FillValue = -999.f ;

float SSS_PCTVAR_ISAS(TIME_DRIFTER) ;
:long_name = "Error on ISAS SSS (5m depth) at drifter location (% variance)" ;
:units = "%" ;
:_FillValue = -999.f ;

float SSS_ISAS17(TIME_DRIFTER) ;
:long_name = "Monthly ISAS17 SSS (5m depth) at drifter location" ;
:units = "1" ;
:salinity_scale = "Practical Salinity Scale (PSS-78)" ;
:standard_name = "sea_water_salinity" ;
:source = "https://www.seanoe.org/data/00412/52367/";
:_FillValue = -999.f ;

float SSS_PCTVAR_ISAS17(TIME_DRIFTER) ;
:long_name = "Error on monthly ISAS17 SSS (5m depth) at drifter location (% variance)"
;
:units = "%" ;
:_FillValue = -999.f ;

float SSS_ISAS20(TIME_DRIFTER) ;
:long_name = "Monthly ISAS20_ARGO SSS (5m depth) at drifter location" ;
:units = "1" ;
:salinity_scale = "Practical Salinity Scale (PSS-78)" ;
:standard_name = "sea_water_salinity" ;
:source = "https://www.seanoe.org/data/00412/52367/";
:_FillValue = -999.f ;

float SSS_PCTVAR_ISAS20(TIME_DRIFTER) ;
:long_name = "Error on monthly ISAS20_ARGO SSS (5m depth) at drifter location (%
variance)" ;
:units = "%" ;
:_FillValue = -999.f ;

float SEA_ICE_CONCENTRATION(TIME_DRIFTER) ;
:long_name = "Daily sea ice area fraction (EUMETSAT OSI-SAF OSI-450) at drifter loca-
tion" ;

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:units = "%" ;
:standard_name = "sea_ice_area_fraction" ;
:_FillValue = -999.f ;

float WIND_SPEED_CCMP_6h(TIME_DRIFTER) ;
:long_name = "6-hourly CCMP wind speed at drifter location" ;
:units = "m s-1" ;
:standard_name = "wind_speed" ;
:_FillValue = -999.f ;

float WIND_SPEED_CCMP_10_prior_days(TIME_DRIFTER, N_6H_CCMP) ;
:long_name = "Prior 10 days time series of CCMP wind speed at drifter location" ;
:units = "m s-1" ;
:standard_name = "wind_speed" ;
:_FillValue = -999.f ;

float CDM_GLOBCOLOUR(TIME_DRIFTER) ;
:long_name = "8-day Coloured dissolved and detrital organic materials - mean of the binned
pixels at drifter location" ;
:units = "m-1" ;
:standard_name = "volume_absorption_coefficient_of_radiative_flux_in_sea_water_due_to_dissolved_organic_matter" ;
;
:_FillValue = -999.f ;

float CHL1_GLOBCOLOUR(TIME_DRIFTER) ;
:long_name = "8-day Chlorophyll concentration - mean of the binned pixels at drifter loca-
tion" ;
:units = "mg m-3" ;
:standard_name = "mass_concentration_of_chlorophyll_a_in_sea_water" ;
:_FillValue = -999.f ;

float EVAPORATION_OAFLUX(TIME_DRIFTER) ;
:long_name = "Daily mean evaporation rate (OAFlux) at drifter location" ;
:units = "cm year-1" ;
:source = "https://oaflux.whoi.edu/" ;
:_FillValue = -999.f ;

float SSS_SCRIPPS(TIME_DRIFTER) ;
:long_name = "Argo gridded monthly mean SSS (0m depth) from SCRIPPS (Roemmich-
Gilson) at drifter location" ;
:units = "1" ;
:salinity_scale = "Practical Salinity Scale (PSS-78)" ;
:standard_name = "sea_water_salinity" ;
:_FillValue = -999.f ;

float SSS_IPRC(TIME_DRIFTER) ;
:long_name = "Argo gridded monthly mean SSS (0m depth) from IPRC at drifter location" ;
;
:units = "1" ;

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: salinity_scale = "Practical Salinity Scale (PSS-78)" ;
: standard_name = "sea_water_salinity" ;
: FillValue = -999.f ;

float SST_AVHRR(TIME_DRIFTER) ;
: long_name = "Daily OI AVHRR-only v2.1 SST at drifter location" ;
: units = "degree Celsius" ;
: standard_name = "sea_water_temperature" ;
: source = "https://www.ncei.noaa.gov/data/sea-surface-temperature-optimum-interpolation/v2.1/access/avhrr/" ;
: references = "Reynolds et al., 2007" ;
: FillValue = -999.f ;

float SST_CMC(TIME_DRIFTER) ;
: long_name = "Daily CMC SST at drifter location" ;
: units = "degree Celsius" ;
: standard_name = "sea_surface_foundation_temperature" ;
: source = "http://dx.doi.org/10.5067/GHCMC-4FM03" ;
: references = "Canada Meteorological Center. 2016.GHRSST Level 4 CMC0.1deg Global Foundation Sea Surface Temperature Analysis (GDS version 2). Ver.3.0" ;
: FillValue = -999.f ;

float SST_OSTIA(TIME_DRIFTER) ;
: long_name = "Daily OSTIA SST at drifter location" ;
: units = "degree Celsius" ;
: standard_name = "sea_surface_foundation_temperature" ;
: source = "https://doi.org/10.48670/moi-00168" ;
: references = "Good et al., 2020" ; : FillValue = -999.f ;

float SST_RSS(TIME_DRIFTER) ;
: long_name = "Daily RSS SST at drifter location" ;
: units = "degree Celsius" ;
: standard_name = "sea_surface_foundation_temperature" ;
: source = "http://www.remss.com/measurements/sea-surface-temperature/oisst-description" ;
: references = "MW_IR_OI-REMSS-L4-GLOB-v5.1" ;
: FillValue = -999.f ;

float U_CMEMS_GLOBCURRENT(TIME_DRIFTER) ;
: long_name = "Absolute geostrophic velocity + 0 m Ekman velocity (COPERNICUS-GLOBCURRENT): zonal component at drifter location" ;
: units = "m s-1" ;
: source = "https://doi.org/10.48670/moi-00050" ;
: FillValue = -999.f ;

float V_CMEMS_GLOBCURRENT(TIME_DRIFTER) ;
: long_name = "Absolute geostrophic velocity + 0 m Ekman velocity (COPERNICUS-GLOBCURRENT): meridian component at drifter location" ;
: units = "m s-1" ;
: source = "https://doi.org/10.48670/moi-00050" ;

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        :_FillValue = -999.f ;

float U_OSCAR_GLOBCURRENT(TIME_DRIFTER) ;
    :long_name = "Ocean surface currents (OSCAR v2.0): zonal component at drifter location"
;
    :units = "m s-1" ;
    :source = "https://www.esr.org/research/oscar/overview/" ;
    :comment = "Velocities are an average over the top 30m of the mixed layer" ;
    :_FillValue = -999.f ;

float V_OSCAR_GLOBCURRENT(TIME_DRIFTER) ;
    :long_name = "Ocean surface currents (OSCAR v2.0): meridian component at drifter location"
;
    :units = "m s-1" ;
    :source = "https://www.esr.org/research/oscar/overview/" ;
    :comment = "Velocities are an average over the top 30m of the mixed layer" ;
    :_FillValue = -999.f ;

float WIND_SPEED_CMEMS_6h(TIME_DRIFTER) ;
    :long_name = "6-hourly CMEMS wind speed at drifter location" ;
    :units = "m s-1" ;
    :standard_name = "wind_speed" ;
    :comment = "Multi-sensor blended winds over a 0.25 degree resolution grid , 6-hourly provided by CMEMS (WIND_GLO_WIND_L4_REP_OBSERVATIONS_012_006/CERSAT-GLO-BLENDED_WIND_L4_REP-V6-OBS_FULL_TIME_SERIE)." ;
    :_FillValue = -999.0f ;

float WIND_SPEED_MAXSS_1h(TIME_DRIFTER) ;
    :units = "m s-1" ;
    :standard_name = "wind_speed" ;
    :source = "https://data-maxss.ifremer.fr/satellite/l4/v1.0/" ;
    :comment = "https://www.maxss.org/" ;
    :_FillValue = -999.0f ;
    :long_name = "1-hour MAXSS wind speed at drifter location" ;

float WIND_STRESS_X_CMEMS_6h(TIME_DRIFTER) ;
    :long_name = "6-hourly surface eastward wind stress at drifter location" ;
    :units = "Pa" ;
    :standard_name = "surface_downward_eastward_stress" ;
    :comment = "Multi-sensor blended winds over a 0.25 degree resolution grid , 6-hourly provided by CMEMS (WIND_GLO_WIND_L4_REP_OBSERVATIONS_012_006/CERSAT-GLO-BLENDED_WIND_L4_REP-V6-OBS_FULL_TIME_SERIE)." ;
    :_FillValue = -999.0f ;

float WIND_STRESS_Y_CMEMS_6h(TIME_DRIFTER) ;
    :long_name = "6-hourly surface northward wind stress at drifter location" ;
    :units = "Pa" ;
    :standard_name = "surface_downward_northward_stress" ;
    :comment = "Multi-sensor blended winds over a 0.25 degree resolution grid , 6-hourly

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provided by CMEMS (WIND_GLO_WIND_L4_REP_OBSERVATIONS_012_006/CERSAT-GLO-
BLENDED_WIND_L4_REP-V6-OBS_FULL_TIME_SERIE).” ;
    :_FillValue = -999.0f ;

float SSS_GLORYS(TIME_DRIFTER);
    :long_name = "Daily Sea Surface Salinity (0.5 m depth) at drifter location";
    :units = "1";
    :salinity_scale = "Practical Salinity Scale (PSS-78)";
    :standard_name = "sea_surface_salinity";
    :reference = "GLORYS12V1 provided by CMEMS (GLOBAL_REANALYSIS_PHY_001_030)";
    :source = "https://doi.org/10.48670/moi-00021";
    :_FillValue = -999.0f;

float SSS_EN4(TIME_DRIFTER);
    :long_name = "Monthly Sea Surface Salinity (5 m depth) at drifter location" ;
    :units = "1" ;
    :salinity_scale = "Practical Salinity Scale (PSS-78)" ;
    :standard_name = "sea_surface_salinity";
    :reference = "Viktor Gouretski and Franco Reseghetti, 2010" ;
    :source = "https://www.metoffice.gov.uk/hadobs/en4/download-en4-2-2.html" ;
    :_FillValue = -999.0f ;

float SSS_UNCERTAINTY_EN4(TIME_DRIFTER);
    :long_name = "Monthly Sea Surface Salinity Uncertainty (5 m depth) at drifter location" ;
    :units = "1";
    :salinity_scale = "Practical Salinity Scale (PSS-78)" ;
    :standard_name = "sea_surface_salinity" ;
    :reference = "Viktor Gouretski and Franco Reseghetti, 2010";
    :source = "https://www.metoffice.gov.uk/hadobs/en4/download-en4-2-2.html" ;
    :_FillValue = -999.0f ;

float SSS_SSD_CMEMS(TIME_DRIFTER);
    :long_name = "Weekly Sea Surface Salinity at drifter location";
    :units = "1";
    :salinity_scale = "Practical Salinity Scale (PSS-78)";
    :standard_name = "sea_surface_salinity";
    :source = "https://doi.org/10.48670/moi-00051";
    :reference = "Multi Observation Global Ocean Sea Surface Salinity and Sea Surface Density
(Droghei et al., 2016) provided by CMEMS (MULTIOBS_GLO_PHY_S_SURFACE_MYNRT_015_013/dataset-
sss-ssd-rep-weekly).";
    :_FillValue = -999.0f;

float DISTANCE_TO_ICE_EDGE(TIME_DRIFTER) ;
    :long_name = "Distance to ice edge at drifter location" ;
    :units = "km" ;
    :doi = "https://doi.org/10.24381/cds.29c46d83" ;
    :_FillValue = -999.f ;

float SLA(TIME_DRIFTER);

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:long_name = "Sea Level Anomaly at drifter location";
:units = "m";
:standard_name = "sea_surface_height_above_sea_level";
:comment = "This product is the merged all satellites Global Ocean Gridded SSALTO/DUACS
level 4 provided by CMEMS (SEALEVEL_GLO_PHY_L4_MY_008.047/cmems_obs_sl_glo_phy-
ssh_my_allsat-l4-duacs-0.25deg_P1D).";
:source = "https://doi.org/10.48670/moi-00148";
:_FillValue = -999.0f;

float ERA5_MPWW(TIME_DRIFTER);
:long_name = "ERA5 Mean period of wind waves at drifter location";
:units = "s";
:standard_name = "sea_surface_wind_wave_period";
:_FillValue = -999.0f;

float ERA5_PP1D(TIME_DRIFTER);
:long_name = "ERA5 Peak wave period at drifter location";
:units = "s";
:standard_name = "sea_surface_wind_wave_period_at_variance_spectral_density_maximum";
:_FillValue = -999.0f;

float ERA5_SHWW(TIME_DRIFTER);
:long_name = "ERA5 Significant height of wind waves at drifter location";
:units = "m";
:standard_name = "sea_surface_wind_wave_significant_height";
:_FillValue = -999.0f;

float ERA5_SWH(TIME_DRIFTER);
:long_name = "ERA5 Significant height of combined wind waves and swell at drifter loca-
tion";
:units = "m";
:standard_name = "sea_surface_wave_significant_height";
:_FillValue = -999.0f;

float BATHYMETRY_ETOPO1(TIME_DRIFTER);
:long_name = "ETOPO-1 Ocean bathymetry at drifter location";
:units = "m";
:_FillValue = -999.0f;

// global attributes:
:Conventions = "CF-1.8" ;
:title = "Surface drifters Match-Up Database" ;
:Satellite_product_name = "Satellite Name" ;
:Satellite_product_spatial_resolution = "satellitespatialres" ;
:Satellite_product_temporal_resolution = "satellitetemporalres" ;
:Satellite_product_filename = "satellitefilename" ;
:Match-Up_spatial_window_radius_in_km = colocdx ;
:Match-Up_temporal_window_radius_in_days = colocdt ;
:start_time = "20100114T000005Z" ;

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:stop_time = "20100118T235026Z" ;
:northernmost_latitude = 77.676f ;
:southernmost_latitude = -66.423f ;
:westernmost_longitude = -179.219f ;
:easternmost_longitude = 179.199f ;
:geospatial_lat_units = "degrees north" ;
:geospatial_lat_resolution = "satellitespatialres" ;
:geospatial_lon_units = "degrees east" ;
:geospatial_lon_resolution = "satellitespatialres" ;
:institution = "ESA-IFREMER-ODL-OCEANSCOPE" ;
:project_name = "SMOS Pilot-Mission Exploitation Platform (Pi-MEP) for salinity" ;
:project_url = "https://www.salinity-pimep.org" ;
:license = "Pi-MEP data use is free and open" ;
:product_version = "2.0" ;
:keywords = "Oceans > Ocean Salinity > Sea Surface Salinity" ;
:acknowledgment = "Please acknowledge the use of these data with the following statement: These data were provided by the SMOS Pilot-Mission Exploitation Platform (Pi-MEP) for salinity" ;
:references = "https://www.salinity-pimep.org";
:doi = "https://doi.org/10.3390/rs13224600";
:source = " " ;
:In_situ_data_source = "urlinsitu" ;
:references = "https://www.salinity-pimep.org" ;
:history = "Processed on 2022-04-18 using MDB-generator" ;
:date_created = "2022-04-18 17:09:30" ;
}

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