

**The Coastal Data Information Program**
Integrative Oceanography Division

**SCRIPPS**
Institution of
Oceanography

**DBW**

**USACE**

Themes Recent Historic **Documents** Station ID

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META_PROC - DF FILE PROCESSING

Under CDIP's new processing structure, meta_proc is the program that manages the processing of diskfarm files. It handles all data types - energy, temperature, wind, etc. - and produces all of the standard CDIP data products: spectral files, databank files, and parameter files.

A. The processing archive

All of the information that meta_proc uses to manage the processing of df files comes from the processing archives. A station's processing archive (e.g. .stations/095/095.proc) is basically an instruction book, explaining exactly how that station's files should be processed. Since the processing procedure for a station can change over time, archive files are organized by time frames. Thus once meta_proc determines the time of a file, it can consult the processing archive and determine the correct processing procedure. (See .docs/processing/processing_archive.txt for more details.)

B. Program flow - pre-, mid-, and post- processing

To process a file, meta_proc first opens and loads the processing archive, and then it assembles a list of tasks to be completed. It categorizes these tasks into three groups: pre-, mid-, and post-processing.

I. Pre-processing: Currently there is only one type of pre-processing task: gauge comparison. This pre-processing is used to ensure that pressure sensors in close proximity (e.g. within an array) are in agreement. If one of the sensors does not agree with the others, it is flagged bad and not processed further.

II. Mid-processing: The bulk of meta_proc's work comes in mid-processing. All of the spectral, databank, and report products are made by the mid-processing routines. There are, in fact, two types of mid-processing: default and combined.

a. The default processing works with single-sensor data - a temperature time series is run through the temperature routine, a directional buoy file is run through datawell processing, etc.

b. The combined processing uses multiple files to generate products - a wind speed file and a wind direction file are combined to produce a databank wind entry, four water column files are put through array processing to produce a directional spectral file, etc.

III. Post-processing: Currently there is only one type of post-processing: parameter file generation. During the mid-processing, all of the parameters calculated for each product are saved. Meta_proc's final task is to add these parameters to the appropriate parameter files.

Two special data structures are used to pass information between meta_proc subroutines. If any pre-processing is performed, an 'energy_block' is used to pass the edited time series, the transform coefficients, etc. into the mid-processing. Similarly, the mid-processing routines write parameter data into the 'pm_info_block', which is then passed into the post-processing.

```

INPUT FILES                                PROCESSING TASKS                                OUTPUT FILES
-----                                -
                                'meta_proc rd08300200201150845'
                                |
                                V
083.proc                                ->                                Load processing archive
                                |
                                V
ix08300200201                        ->                                Read index, assemble df file list
                                |
                                V
df08301200201...                    ->                                PRE-PROCESSING:
df08302200201...                    ->                                gauge_comparisons
...                                  ->
df08306200201...                    ->
                                |
                                V
                                MID-PROCESSING:
                                energy
                                directional
                                barometer
                                tidal
df08307200201...                    ->                                --> sp08301, sp08302..
                                --> de08301, de08305..
                                --> sp083p2, dd083p2..
                                --> db08307200201
                                --> + reports, .update
                                |
                                V
                                POST-PROCESSING:
                                run_parameter
                                --> pm083p1200201
                                |
                                V
                                Finished.

```

C. Subdirectories and subroutines

Descriptions of meta_proc's major subroutines are given below.

```

gauge_comparisons - pre-processing agreement checks for pressure sensors.
                    Can be used for any number of sensors; a prerequisite
                    for array processing.

energy -            processes single-point pressure sensors and
                    non-directional buoys.

detox -             processes directional buoy data.

temperature -       processes temperature data.

wind -              processes wind and wind buoy data.

directional -        performs array processing on wave data.

update_reports -     routines for writing to the .mondar and .update reports.

parameter -          routines for writing to the parameter files.

```

