

IV. Data File Specifications

The PacIOOS data management system is fundamentally based on providing access to data via standard web services. At present, TDS is the main mechanism for this, and therefore data are saved in netCDF format whenever possible. The number of files is still manageable without need of a database (except in the case of the geospatial data, described later), so a flat file system is used. Data sets are organized by platform (*e.g.*, buoy, model, *etc.*) and put into directories based on type. Different platforms are then put into subdirectories by name, typically these are based on location or sequence. For example, the near-shore sensor data are kept in a directory `/export/lawelawe1/nss`. In this directory are subdirectories for `ns01`, `ns02`, `ns03`, *etc.*

Within each platform subdirectory, the data are further organized by time. Depending on the granularity of the output, subdirectories can include year and month.

Finally, data sets are named with an indication of the date, again depending on the granularity of the data sets. Table 17 lists the file structure along with the filename convention for data archived on the PacIOOS system.

ACO	
Directory	<code>/export/lawelawe1/aco</code>
Sub-directories	by platform (only ADCP), netcdf files by year, month, day
Filenames	<code>platform_yyyymmdd_h1_h2.nc</code>
Example	<code>adcp/2012/08/28/adp5_20120828_00_08.nc</code>
File dimensions (x,y,z,t)	1, 1, 20, 14297 (one file per 8hr, 2-second resolution)
AIS	
Directory	<code>/export/lawelawe1/ais</code>
Sub-directories	none
Filenames	<code>aisdatayymmdd-hhmm.ais</code>
Example	<code>aisdata120828-0700.ais</code>
File dimensions (x,y,z,t)	1, 1, 1, var (one file per hour)
Beach cameras	
Directory	<code>/export/lawelawe1/beach_cam</code>
Sub-directories	location and view, date, date and time
Filenames	<code>color.jpg</code> , <code>movie.avi</code>
Example	<code>sheraton1/2012-08-28/20120828T170000/color.jpg</code>
File dimensions (x,y,z,t)	1, 1, 1, 1 (one file per hour)
Degree Heating Weeks	
Directory	<code>/export/lawelawe1/dhw</code>
Sub-directories	type (netcdf and hdf), year
Filenames	<code>sst.coralreef.fields.50km.yyyymmdd.nc</code>
Example	<code>cdf_data/2012/sst.coralreef.fields.50km.20120828.nc</code>
File dimensions (x,y,z,t)	720,331,1,1 (one file per day)

Gliders	
Directory	/export/lawelawel/glider
Sub-directories	glider number and mission number
Filenames	<i>pnnnmmmm.nc</i>
Example	<i>sg139_7/p1390749.nc</i>
File dimensions (x,y,z,t)	1, 1, various, various (one file dive cycle; single up and down)
HF Radios	
Directory	/export/lawelawel/hfr
Sub-directories	site name, year, month
Filenames	<i>RDL_sss_yyyy_ddd_HHMM.nc</i>
Example	<i>kok_netcdf/2012/08/RDL_kok_2012_240_2300.nc</i>
File dimensions (x,y,z,t)	76, various,1,1 (actually range, bearing for single level and single time)
Models	
Directory	/export/lawelawel/model
Sub-directories	discipline, model type, grid
Filenames	<i>grid_yyyymmdd.nc</i>
Example	<i>ore/ww3/Hawaii/ww3hawaii_20120828.nc</i>
File dimensions (x,y,z,t)	completely variable
Near-shore sensors	
Directory	/export/lawelawel/nss
Sub-directories	by platform, raw and netcdf data by year
Filenames	<i>platform_year_month_day.nc</i>
Example	<i>ns01/netcdf_data_2010/ns01_2010_08_28.nc</i>
File dimensions (x,y,z,t)	1,1,1,360 (one file per day, 4-minute resolution)
OrbComm AIS	
Directory	/export/lawelawel/orbcomm_ais
Sub-directories	glider number and mission number
Filenames	<i>pnnnmmmm.nc</i>
Example	<i>sg139_7/p1390749.nc</i>
File dimensions (x,y,z,t)	1, 1, 1, various (one file contains all broadcasts for the month)
Tide gauge	
Directory	/export/lawelawel/uhs1c
Sub-directories	time period,
Filenames	<i>hnnn.nc, dnnn.nc, mnnn.nc</i>
Example	<i>fast_monthly/m400.nc</i>
File dimensions (x,y,z,t)	1, 1, 1, various (depends on hourly, daily or monthly and location)
Water quality buoys	
Directory	/export/lawelawel/wqb
Sub-directories	by platform, raw and netcdf data by year
Filenames	<i>platform_year_month_day.nc</i>
Example	<i>wqbaw/netcdf_data_2010/wqbaw_2010_08_28.nc</i>
File dimensions (x,y,z,t)	1,1,1,72 (one file per day, 20-minute resolution)

Table 17. Summary of data files on local PacIOOS server machine.

PacIOOS attempts to make each file in netCDF format whenever possible. In addition to this format, every attempt is made to use Climate Forecast (CF) conventions for variable names and units. At present, the only data sets that are created by the DMG are those from the near-shore sensors and water quality buoys. Glider output comes directly from the piloting software (in netCDF); models supply output in native netCDF; HFR data are sent via Matlab binary and converted; all

model output is delivered in netCDF. Data coming from external sources, *e.g.*, AIS data, are converted as needed.

