

Digital Data Handling

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Storage and Archiving

Data to be archived should be corrected for documented instrumental and datum errors only. No gap-filling is to be applied to archived data - this is to be left to the individual later undertaking post-processing of the data.

"A sea level agency should aim to not only operate gauges to its best ability, but also to provide proper documentation, data processing and archiving functions. Documentation has already been alluded to in previous sections. All tide gauge operations (equipment change notes, calibration records, maps, photographs etc.) must be documented within an overall, preferably computerised system so that the information is not lost to future analysts. The tide gauge data themselves must be checked (and if necessary corrected) for their quality and properly documented before being passed to scientists in the wider community."

– IOC Training Manual Vol. III

Quality Control

Quality control of the data prior to archiving consists of several checks. If more than one gauge is in operation at the site, subtraction of the two time series may reveal abrupt changes in reference level (a gauge from a nearby port may also serve). Comparison with a tide staff, though less precise, is an equivalent check.

A second check consists of subtraction of a time series of predicted tides from the data. What remains are the tidal "residuals". Inspection of the residuals can reveal timing errors, datum shifts, out-of-range values, and other errors not apparent in the original data. If possible, such errors are to be resolved and removed from the data prior to archiving. If an error such as a datum shift is evident, but its exact location in time can not be identified, the problem must be fully documented in the metadata. The quality assessment practices vary between different institutions. The University of Hawaii's [UHSLC QA system](#) fully documents the

quality assessment process and provides full metadata for their "research quality sea level data".

Post-processing

These procedures were described in IOC Training Manual Vol. II [Section 5](#). A revised and updated version was presented in Vol. III [Section 5](#), however the earlier volume contains some valuable details not included in the latter. Volume III also discusses tide analysis, filtering to remove tides, and the computation of extremes.

Data Exchange Formats

A protocol for data exchange was laid out in IOC Training Manual Vol. III [Section 6](#). In Australia, the PCTMSL ([May 2004 report](#)) has acknowledged the existence of several international formats and affirmed the need for a minimum set of metadata. These are: Identification (Station Name and Geographical Co-ordinates); Measurement Units; Details of Owner/Custodian and Contact details; Date of Supply; Quality Assessment; Instrumentation. This information is sufficient to enable the user to seek further information from the data provider.

Data Banks

International sea level centres and information required to submit data to them, are listed in the IOC Training Manual Vol. II [Section 6](#).

The [GLOSS station Handbook](#) has a more comprehensive set of metadata for ports - for example see [Fremantle](#). The Australian stations on the GLOSS database are listed below (note that the port numbers are active only if online).

Australian Gloss Stations				
061	Booby Is.	Australia	10 36'S	141 55'E
058	Brisbane (West Inner Bar)	Australia	27 22'S	153 10'E
040	Broome	Australia	18 00'S	122 13'E
059	Bundaberg	Australia	24 46'S	152 23'E
052	Carnarvon	Australia	24 54'S	113 39'E
278	Casey	Australia	66 17'S	110 32'E
047	Christmas Is.	Australia	10 25'S	105 40'E
046	Cocos Is. (Keeling)	Australia	12 07'S	096 53'E
062	Darwin	Australia	12 28'S	130 51'E

277	Davis	Australia	68 35'S	077 58'E
054	Esperance	Australia	33 52'S	121 54'E
053	Fremantle	Australia	32 03'S	115 43'E
148	Lord Howe Is.	Australia	31 31'S	159 04'E
130	Macquarie Is.	Australia	54 30'S	158 56'E
022	Mawson	Australia	67 36'S	062 52'E
124	Norfolk Is.	Australia	29 04'S	167 57'E
051	Port Hedland	Australia	20 19'S	118 34'E
055	Portland	Australia	38 20'S	141 36'E
056	Spring Bay	Australia	42 33'S	147 56'E
057	Sydney, Fort Denison	Australia	33 51'S	151 14'E
308	Thevenard	Australia	32 10'S	133 40'E
060	Townsville	Australia	19 16'S	146 50'E

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