



# On-line quality control service of MHI

Alexey Khaliulin, Eugeny Godin, Andrey Ingerov, Elena Zhuk

Marine Hydrophysical Institute  
 Ukrainian National Academy of Sciences  
 2 Kapitanskaya St., Sevastopol, 99011, Ukraine.  
 E-mail: [meit@nodc.org.ua](mailto:meit@nodc.org.ua); <http://www.nodc.org.ua>



A on-line quality control service is developing and testing in MHI NASU. We took into consideration the approaches to data quality control of such data products as WOD; MEDAR/MEDATLAS II; NATO TU BLACK SEA databases also we paid attention to recommended by IOC UNESCO procedures for validation of oceanographic data. Using experience of international collaboration in the field of data collection and quality check we have developed the test version of on-line quality control service providing preliminary (automatic) data quality check procedures. QC procedure includes uploading of ODV file, metadata and data quality control and returns file with QC flags corresponding to SeaDataNet vocabulary L 201. Test version of on-line quality control implements QC procedure for ANSI Generic ODV Spreadsheet for versions 3.4 and 4 or SDN ODV format.

## QC tests

### Metadata quality control tests are:

- location check;
- date and chronology check;
- ship velocity check;
- sea depth check;
- last sounding value check;

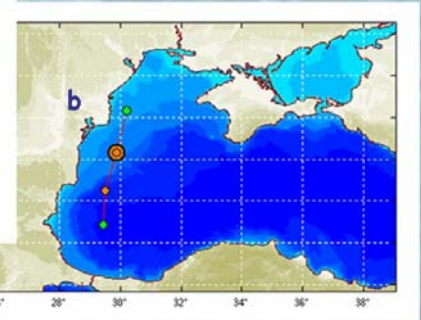
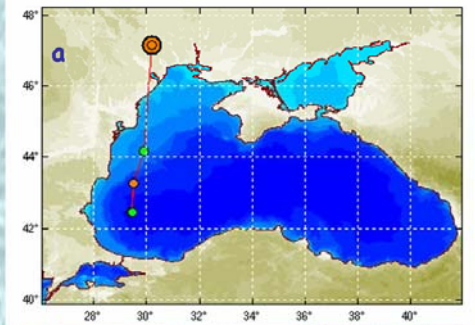
### Data quality control tests are:

- sounding value check, climatic check (if possible QC tests);
- range check (if climatic check is not available)
- density inversion check for hydrological data

## Example (principles) of on-line QC tests

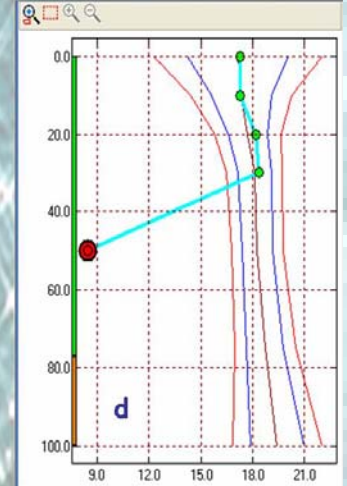
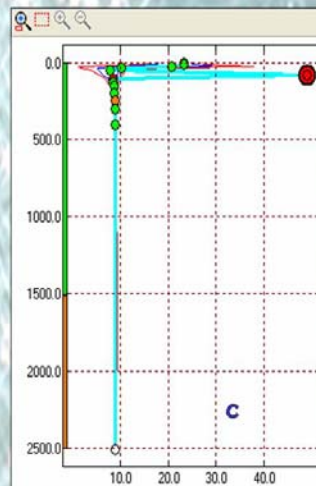
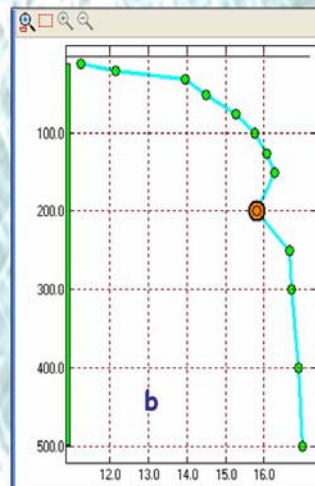
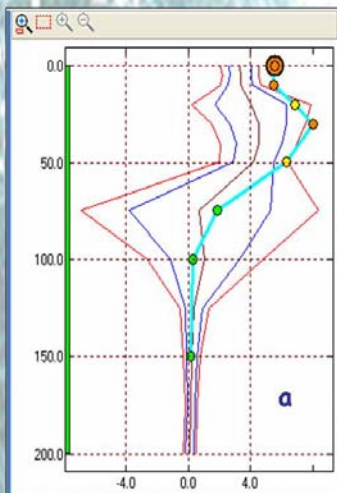
### QC flags

- 0-no quality control
- 1-good value
- 2-probably good value
- 3-probably bad value
- 4-bad value
- 5- changed value
- 6-value below detection
- 7- value in excess
- 8- interpolated value
- 9- missing value
- A-value phenomenon uncertain



Possible metadata errors a - station location error; b - velocity between stations error

We estimated climatic characteristics for different squares of the Black Sea for each month for temperature, salinity, density, oxygen and hydrogen sulfide. For other parameters checking we use available climatic information as well as regional and global ranges



a - out of climate; b - density inversion; c - spike; d - gradient error