



## 6.4 Position Information for Under-Ice Floats Ast-19



Working Group: Thierry Carvel, Bec Cowley, Birgit Klein, Taiyo Kobayashi, Jean-Philippe Rannou, Megan Scanderbeg, Claudia Schmid, Esmee van Wijk, Annie Wong

Summary of discussion at AST-18 and ADMT-18 and work for the working-group prior to AST-19

Proposal to ADMT-18 requested four different pieces of information to be stored with under ice-positions:

- Position error and/or accuracy
- Position QC
- Positioning system (GPS, Iridium, RAFOS etc.)
- Method used to derive position (if not directly returned by a positioning system)

Concerned changes were suggested for the profile file and the trajectory file.

ADMT-18 suggested to split problems apart, agreed on a solution for profile files and referred questions about the trajectory files back to the working group.

Suggested solution for **profile files** is to add two optional variables: POSITION\_ERROR(n\_prof) and POSITION\_COMMENT(n\_prof,stringxxx).

**POSITION\_ERROR** as optional variable had already been the supported option from AST-18 and now also from ADMT. POSITION\_COMMENT can be used to describe the method used to determine positions and could either be free text or specified list of comments.

These optional fields will only be created for a subset of profiles if it can be estimated, e.g. for under ice profiles where the float did not surface and did not obtain a GPS or Iridium position (these profiles can typically be identified by POSITION\_QC = 8 meaning 'estimated').

**POSITION\_COMMENT**: We suggest allowing free text for the moment and providing some suggested examples in the manual, i.e. linear interpolation and extrapolation as two possible standard strings. Once different estimation methods have been published (P. Chamberlain, K. Reeves) we will update the manual with appropriate examples.

In terms of the **trajectory file** the discussion at ADMT\_18 reached no conclusions, too many options were presented and the working group was asked to discuss it internally and provide a new proposal at ADMT-19. The main open topic is the question: **Is there a need for estimated positions to be in the TRAJ file?**

Currently the ADMT has restricted the trajectory file to contain only 'good' quality position fixes (i.e. Argos and GPS only).

Lower quality positions (i.e. Iridium, estimated, interpolated) can still go in the profile files where the accuracy is not as important.

It was already decided to place the RAFOS timing information (TOA+COR) into the auxilliary files.

Feedback from the working group is that we agree that **all** reported positions should be stored somewhere in case we need them for future use. But until we can make a strong case for them to go into the traj-files we recommend DACs store these in the aux-files.

For the RAFOS positions we propose for the moment to keep the underway positions in aux-files, because it only concerns such a small subset of floats and we don't want to overburden DACs with reformatting traj-files. In principal RAFOS positions should be of comparable quality to GPS and Argos and could go into the traj-files when estimated. But for the moment the WG is fine with the aux-file solution and wait for potential users to articulate their needs.