

Modifications of the IAGA 2002 format: Suggestion made in December 2010

Background. On the background of the upcoming Swarm mission the observatory data user community requests to create the new data type "Quasi Definitive". During the last INTERMAGNET meeting held 18-20 October 2010 in Paris it was decided to establish this data type and to modify the IAGA 2002 format accordingly. A further decision of INTERMAGNET was to introduce the concept of ΔF (the difference between total field values derived from variometer data and measured using a scalar instrument).

The present IAGA 2002 format allows in the mandatory header the types Provisional, Definitive, or Variation. The new established type Quasi Definitive does not fit to any of the 3 present possible ones. It needs to be clearly distinguished from all of them.

Current codes for geomagnetic elements do not include (as standard) a code for ΔF . INTERMAGNET propose that the code 'G' should be used for ΔF .

Suggestion. INTERMAGNET suggests adopting the new data type Quasi Definitive in the IAGA 2002 format by extending the present 3 data types to 4. INTERMAGNET proposes that the current 7 geomagnetic field elements (XYZHDIF) be extended with an eighth (add G) that designates ΔF .

Detailed description of the format modifications. There are 3 points to be modified in the IAGA 2002 format.

1. In the data type field of the metadata, the valid values be extended to include "Quasi Definitive".
2. In the file name convention the new data type should be considered by adopting "q" as a valid code for the data type.
3. To add G as a valid geomagnetic element for the fourth data column (currently only F is valid here) to allow orientation codes of XYZG and HDZG.

G is defined as ΔF :
$$\Delta F = F(v) - F(s)$$
where $F(v)$ represents the total field value calculated from the main observatory instrument (vector F) and $F(s)$ represents the total field from an independent instrument (scalar F). Both $F(v)$ and $F(s)$ must be corrected to the location in the observatory where geomagnetic absolute observations are made. When $F(s)$ is missing or both $F(s)$ and $F(v)$ are missing, set ΔF to the missing value. When $F(v)$ only is missing, set ΔF to $-F(s)$.

Future. The format modification will be announced and formally approved at the WG V-DAT Business Meeting during the IUGG-2011 Assembly in Melbourne.