

IAU Division I Working Group
“Nomenclature for Fundamental Astronomy” (NFA)

Newsletter 4

Nicole Capitaine, 15 March 2004

Introduction

The purpose of this Newsletter is to begin the next step of the NFA questionnaire process and more generally the next step in the work that the IAU Working Group “Nomenclature for Fundamental Astronomy” needs to accomplish. It is therefore necessary that first the WG defines what this second step should be.

The NFA questionnaire has allowed each WG member or Almanac person to express his/her own opinion on (i) possible problems in the implementation (especially for updating to the IAU 2000 precession-nutation and introducing the CEO), and (ii) various terminology choices. The documents collecting the responses provide the WG with the opinions of the whole WG membership and from the Almanac Offices as well. It is noted that the latter group will be using the terminology associated with the new IAU Resolutions in the very near future (see their Questionnaire B responses).

Based on this information, an e-mail discussion within the NFA can begin. It will help the exchange of opinions, to discuss as many issues as possible, in particular those regarding the WG tasks, and to reach a consensus for future actions.

In order to initialize the discussion, this Newsletter includes (1) a short summary of the questionnaire responses and proposals of key points on which the WG should focus, (2) specific questions to the NFA WG, and (3) a first draft of selected questions that are proposed to be retained in the revised version of the Questionnaire which is to be submitted to a wider astronomical community.

1 Short summary of the questionnaire responses and proposal for key points on which the WG should focus

1.1 Responses on the implementation of the IAU Resolutions

A large number of publications and software products have been listed (Question II); updating to the IAU 2000A model (Question IIIa) is largely planned for all this material within the immediate future. However, there are some criticisms about the relationship between number of terms and accuracy of the IAU 2000A/B models, and some requirement for an independent and improved dynamical precession theory. Introducing the CEO (Question IIIb) is planned in many cases, but will be (i) introduced more slowly, (ii) with the help of SOFA or the IERS routines, and (iii) after testing and validation. In all cases this introduction will be done in parallel with the classical use of the equinox, and an educational effort is clearly required.

1.2 Opinions on terminology choices

It appears that **(i) there is a majority for:**

Question 1: using existing terms in extended ways for the terminology associated with the new paradigm with a clear specification, rather than introducing new names,

Question 3: using 'equinox-based' and 'CEO-based' for referring to the classical and new paradigms, respectively (a more recent option being 'equinoctial' versus 'orthogenetic' or 'orthokinetic', see Mark Calabretta's comments on page 37),

Question 4a: giving names to the systems containing the CIP and the CEO (CIO), and containing the CIP and the TEO (TIO),

Question 4ab: using special designation for particular realization of the system/frame (as for example IAU 2000A),

Question 4b: using 'intermediate' to describe (i) the celestial system containing the CIP and the CEO (CIO), and (ii) the terrestrial system containing the CIP and the TEO (TIO),

Question 4c: keeping the classical terminology for 'true equator and equinox' (or 'true equinox-based') for the classical equatorial system,

Question 5a: harmonizing the name of the pole and the origin to 'intermediate',

Questions 6a, 6b, 6c: choosing 'equinox-right ascension' and 'CEO-right ascension', respectively (or 'RA with respect to the equinox/or CEO'), for the azimuthal coordinate along the equator in the classical and new paradigms, respectively,

Questions 7b(i), (ii): keeping Greenwich meridian for non precise use and using ITRF meridian through the ITRF origin,

Question 8: giving a name to the distance between the equinox and the CEO along the equator,

Questions 9a, 9b: retaining 'apparent places' and 'mean places' in the equinox-based system,

Question 9d: not introducing 'apparent intermediate places' in the CEO-based system,

Questions 9e, 9f: not considering other types of apparent places as essential within the tasks of this WG.

(ii) and in contrast, there is no consensus for:

Question 2: using or not using capitals for names for origins, poles and systems,

Questions 4b, 4ab: using 'system' or 'frame' in the context of the 'intermediate' system/frame; this has still to be debated, but a solution might be to use 'system' in a more general sense (for example 'coordinate system') than the strict sense,

Questions 5b, 5c, 7a: choosing between CEO/CIO and TEO/TIO,

Question 7b(iii): giving a name to the meridian through the TEO (TIO),

Question 7b(iv): retaining a name for the 'ephemeris meridian',

Question 8: selecting the name for the distance between the equinox and the CEO along the equator,

Question 9c: introducing 'intermediate places' in the CEO-based system.

1.3 Key points on which the WG should focus

Given the summary of the previous section and the responses to some of the questions, we can conclude that:

- a) the WG should try at first to reach a consensus on the issues provided in list (i) (Sect. 1.2),
- b) an additional WG discussion is necessary on Questions 2, 4a and 4ab(i), 5b, 8,
- c) the WG should work on producing educational documents.

2 Specific questions to the WG

In order to initialize the discussion, the WG members are requested to answer the following specific questions:

- 2.1 Comment about the points of the summary above (Sect. 1), regarding your agreement or disagreement with the conclusions,
- 2.2 Do you have any additional conclusions from the Questionnaire responses?
- 2.3 What do you think are the most important questions to be retained for the revised version of the questionnaire?
- 2.4 What additional questions would you like the WG members to be asked?
- 2.5 Give for each point reported in , your flexibility on the choice you have indicated:
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 - 1 if you are not flexible at all,
 - 2 if you can accept the majority choice even if it is not yours,
 - 3 if you are opposed to the majority choice.

3 Draft selection of questions for the Questionnaire to be submitted to a larger astronomical community

The draft list of questions is proposed to be retained in the revised version of the Questionnaire to present to a wider astronomical community:

II, III, 1, 3, 4b, 4c, 5a, 6a, 6b, 7a, 7b, 8.

However, some re-wording is essential, as for example, proposed by Chopo Ma (see pages 39 and 40 of the document collecting the WG questionnaire responses).