

Questionnaire NFA/A on “Terminology choices”

Deadline for filling the questionnaire: 31 January 2004

The purpose of this questionnaire is to provide information to the WG so that it can determine the opinions of the astronomical community regarding the terminology needed to implement and promulgate the IAU 2000 resolutions, including those on nutation and the new origin. There is a complementary questionnaire NFA/B for the Almanac Offices.

Please read all the questions, and look at Annex 1 (Table of Terms) to obtain the full picture: the first five questions, I-V, of this questionnaire are about your personal concerns relating to the issues, and questions 1-10 concern the terminology choices.

We realize this questionnaire is long and covers many topics, not all of which might be important to you. Please answer only those questions about which you are knowledgeable and have a definite opinion. It is not necessary to complete the entire questionnaire. We appreciate all ideas, opinions, and concerns we receive, and we thank you for your time.

Please make amendments. Note that those words, phrases highlighted in **blue** are those that come directly from the IAU 2000 resolutions, suggestions are in **green**, those marked in **red** correspond to suggestions or terms used in this questionnaire and have not been recommended by the IAU. Finally, those in black are in regular use. Recall that at present the terms that are defined in the IAU 2000 resolutions are *Celestial Intermediate Pole (CIP)*, *Celestial Ephemeris Origin (CEO)*, *Terrestrial Ephemeris Origin (TEO)* and *Earth Rotation Angle (ERA)*.

For each terminology choice, please provide wherever you can, the corresponding name in French and/or comment on possible problems of compatibility with your language.

IAU WG

12 January 2004

QUESTIONS ABOUT YOUR PERSONAL CONCERNS ON THE ISSUE

I. What is your field of research or area of work? _____

II. List the publications and software products that you use, and believe will be affected by the IAU 2000 precession-nutation theory and the celestial ephemeris origin. For each publication and software product, indicate (i) if you have control over it, and your views on (ii) the IAU 2000 precession-nutation theory, and (iii) introducing the celestial ephemeris origin (a few examples are provided).

Publication/Software Product	Type of Product	(i) Control	(ii) Updating to IAU 2000 precession-nutation *	(iii) Introducing the celestial ephemeris origin *	Comment
A few examples					
<i>Astronomical Al.</i>	<i>Book</i>	<i>Yes</i>	<i>Yes 2006</i>	<i>2006 – few tables</i>	
<i>Connaissance des temps</i>	<i>Book</i>	<i>Yes</i>			
<i>MICA</i>	<i>Software</i>	<i>No</i>	<i>Necessary</i>		
<i>AsA</i>	<i>Book</i>	<i>No</i>	<i>Necessary</i>	<i>x, y, s, theta</i>	<i>As soon as possible please</i>
<i>CalC</i>	<i>Software</i>	<i>No</i>	<i>Necessary</i>	<i>desirable</i>	
To be filled					

* If the answer to both is 'NO' then enter N or No. If the answer is positive for either (ii) or (iii) please indicate, if possible, the year of product that will see the changes.

III. Considering the items listed above, please indicate what problems you think you will have. Either with implementation, or if those items used are updated or not updated:

a. the IAU 2000 precession-nutation _____

b. the *Celestial Ephemeris Origin*. _____

IV. E-mail address _____

V. Signature and date _____

TERMINOLOGY CHOICES

1. Do you think it better to re-use an existing term, such as *Greenwich* and *right ascension*, in a redefined or extended way, or define a new term?

Yes/No, give reasons: _____

2. Do you agree that, in general, all the words for origins, systems, poles, should have the first letter as a capital? At present, for example, *Greenwich mean sidereal time* and the *equinox* do not usually have capital letters, other than the name Greenwich. However, for example, the IAU have written, the *Celestial Ephemeris Origin*, and then included the abbreviation (CEO) in capitals after. Note that the abbreviation should, in general, always be in capitals.

Yes/No: comment _____

Note that the rest of this questionnaire uses capitals only when necessary.

3. In the general case, how do you wish to refer to the pre IAU 2000 paradigm using the *equinox*, and the paradigm recommended by the IAU 2000 resolutions using *the celestial ephemeris origin (CEO)*? Some suggestions are *conventional /classical / classic / old* or *new / modern / polar / CEO-based* or something else. _____

4. Consider the system defined by the IAU 2000 resolutions that consists of the *celestial intermediate pole (CIP)* and either the *celestial ephemeris origin (CEO)* or the *terrestrial ephemeris origin (TEO)* on the true equator of date.

a. Is it useful to name the system containing (i) the *celestial ephemeris origin (CEO)* and *celestial intermediate pole (CIP)* and (ii) that containing the *terrestrial ephemeris origin (TEO)* and *celestial intermediate pole (CIP)*?

Yes/No _____

b. Suggest a suitable name/phrase for these systems:

for (i) the

- (1) *celestial intermediate system (CIS)*, or the
- (2) *celestial ephemeris origin and the true equator of date (CEO and ted)*, or
- (3) *celestial intermediate origin and the true equator of date (CIO and ted)*, or the
- (4) *celestial intermediate origin and intermediate equator (CIO and ie)*, or
- (5) *non-rotating equatorial system (NES)*, or
- (6) *celestial equatorial system (CES)*,

and for (ii) the

- (1) *terrestrial intermediate system (TIS)*, or the
- (2) *terrestrial ephemeris origin and the true equator of date (TEO and ted)*, or
- (3) *terrestrial intermediate origin and the true equator of date (TIO and ted)*, or the
- (4) *terrestrial intermediate origin and intermediate equator (TIO and ie)*, or the
- (5) *rotating equatorial system (RES)*, or *terrestrial equatorial system (TES)*,

or not formally named, or something else?

for b(i) _____

for b(ii) _____

c. What would be the corresponding name for the equatorial system defined by the true equinox and the true equator of date: e.g. true equinox and equator of date (ted), *equinoctial equatorial system (EES)* _____

5. Should the name of the pole and origin be as specified by the IAU 2000 resolutions – *celestial intermediate pole (CIP)*, *celestial ephemeris origin (CEO)* and *terrestrial ephemeris origin (TEO)*, or would you prefer to harmonize the name of the pole and the origin, or choose a new one:
- a. harmonized to *the celestial intermediate pole (CIP)*, *celestial intermediate origin (CIO)* and *terrestrial intermediate origin (TIO)* or something else? _____

 - b. if you are not in favour of the harmonized use of 'intermediate', should the name of the *celestial intermediate pole (CIP)*, be changed to *reference pole*, *conventional pole*, *celestial ephemeris pole*, or something else? _____

 - c. something else _____

6. Consider the names of the geocentric equatorial coordinates, right ascension and declination. The following terms are currently in use, *right ascension*, *apparent right ascension*, *right ascension with respect to the true equinox of date*, *right ascension with respect to the mean equinox of date*:
- a. In the IAU 2000 paradigm, should the name of the coordinate other than declination be completely new?

Yes/No _____

- b. Consider the following phrases and comment in which system they should be used, i.e. *classical*, *modern*, both, neither, or make a suggestion/comment.
 - i. *right ascension* _____
 - ii. *equinox right ascension* _____
 - iii. *apparent right ascension* _____
 - iv. *apparent equinox right ascension* _____
 - v. *intermediate right ascension* _____

vi. *apparent intermediate right ascension* _____

vii. *right ascension with respect to the equinox* _____

viii. *right ascension with respect to the CEO* _____

ix. *longitude coordinate* _____

x. *equatorial azimuth* _____

xi. *celestial (equatorial) longitude* _____

xii. or something else/comments: _____

- c. When you read the words, *right ascension*, without amplification as to its reference origin or direction (e.g. apparent) would you expect that it is measured from the *true equinox*, the *mean equinox* or the *celestial ephemeris origin*, or do you think it is undefined? **Please comment** _____

7. Origins and Meridians of the terrestrial system.

- a. What should the name of the terrestrial origin be; the *terrestrial ephemeris origin*, the *terrestrial intermediate origin*, Greenwich, or something else _____

- b. There are now several prime meridians; should they all have special names? Please suggest names and comment. The meridians are:–

(i) The **Greenwich meridian** (at Greenwich UK), _____

(ii) the meridian through the ITRF origin, (the WGS84 origin, longitude zero), _____

(iii) the meridian through the *terrestrial ephemeris origin* (TEO), (or **TIO**) _____

(iv) the *ephemeris meridian*, the meridian such that $GAST(UT) - \alpha_e(TT+DT=0) = 0$, or $ERA(UT) - \alpha_i(TT+DT=0) = 0$ (see AsA E43). _____

8. What name/phrase do you wish to give to the quantity that gives the difference between Greenwich apparent sidereal time and *Earth Rotation Angle* i.e. $(GAST-\theta)$; *RA Offset, the equation of the origins*, leave it un-named, or something else _____

9. In the context of the pre and post IAU 2000 resolutions, please comment on the use of the following phrases. In particular, should the distinction between just applying frame bias, precession and nutation, and including light-time, light deflection etc., be kept when dealing with places generated using the **modern** paradigm.

<i>Phrase</i>	Short Meaning
<i>apparent place</i> , implies RA with respect to the equinox, (mean or true), and a declination with respect to the true equator of date.	geocentric, including light-time, light deflection, aberration, frame bias, precession and nutation – classical paradigm.
<i>mean place</i> , implies RA with respect to the mean equinox and declination measured from the mean equator of date.	geocentric, frame bias and precession – classical definition.
intermediate place , implies RA with respect to the CEO and declination measured from the true equator of date (i.e. <i>intermediate equator</i>)	geocentric, including frame bias, precession and nutation only – modern paradigm.
apparent intermediate place , implies RA with respect to the CEO and declination measured from the true equator of date (i.e. <i>intermediate equator</i>)	geocentric, including light-time, light deflection, aberration, and frame bias, precession and nutation – modern paradigm.
<i>astrometric place</i> , implies RA with respect to the ICRS origin, declination with respect to the ICRS equator (star-like position).	geocentric, including light-time – both paradigms.

a. *apparent place* _____

b. *mean place* _____

d. *intermediate place* _____

e. *apparent intermediate place* _____

f. *astrometric place* _____

g. *proper (virtual) place* _____

10. Any other comments? _____
