2nd Earth Orientation Parameter Prediction Comparison Campaign

General rules for participation

Scope of Document

1. description of candidate registration,
2. submission rules,
3. naming and file formats convention.

Definitions

1. Office: group of scientists and support personnel to whom all predictions should be submitted. The Office is not actively participating in the campaign with own prediction methods
2. Candidate Method: an individual algorithm used by a processing center or an individual scientist (a scientist can submit more than one candidates) to predict EOP
3. Forecast Horizon: number of days into the future that are covered by a prediction (maximum is 365 days)
4. Submission Cycle: Time at which a new prediction should be submitted by each candidate Method
5. Day zero: the epoch at 0 UTC of the day of the submission (Wednesday)

1. Registration

The EOP PCC is open to all. Those interested should register using the form on the EOP PCC webpage http://eoppcc.cbk.waw.pl/participant-registration/. In reply we will send you numerical Candidate Identifier (ID) and information about an individual account for uploading data, which will be used in the data submission process. Any new candidate is welcomed at any time. We accept and encourage collaborative efforts across different institutes.

Highlights:

1) every prediction center that intends to participate needs to register to obtain a three-digit numerical ID,
2) collaborative efforts across different institutes will receive only a single ID,
3) scientists or institutions with more than one distinct prediction methods should register separately to obtain separate IDs for each method,
4) only those IDs will be used to identify individual candidate solutions,

5) a single ID allows to submit predictions for all parameters predicted with assigned method.

Registration requirements (obligatory):

1) Name of the consortium or institution,
2) Members of the consortium with affiliations,
3) Corresponding person,
4) Contact email.

The Office also ask all candidates to send a description of the prediction algorithm which will include the following information:

1) computational method or algorithm,
2) programming language or other tools used,
3) the information what data input(s) data are used to compute the predictions.

2. File submission

SFTP incoming server for the submission of predictions by candidates will be made available by the Office. Information and examples are given on the EOP PCC webpage http://eoppcc.cbk.waw.pl/data-submission/. Only submissions fully received before the deadline will be processed further. The exact date and time of any submission will be logged.

All data will be analysed automatically, therefore we impose the naming convention for the data files.

Highlights:

1) one submission cycle per week,
2) submissions should be made always on Wednesday – submission deadline is 20h UTC (sharp),
3) submission day is considered day zero. Day one is considered to be the epoch at 0 UTC of the following day. Since all submissions are required at 20 UTC (sharp), there are 20 hours of time available to collect data, perform all calculations, and upload the submission. It would be allowed to use GNSS real-time data recorded during day zero even after 0h UTC. In the prediction file, however, only the values at 0h UTC should be listed (daily sampling).

3. Format definition of an individual prediction

The Office proposes flexible rules concerning internal file formats, to ensure that file generation is quick and easy for preparing submissions. Candidates should choose the most convenient method for their case. It is recommended to save files as text files (*.txt). Candidate can choose either the only one or even all type of parameters. Also, only files sent **on time before 20 UTC** will be analysed.

1) File format

a) The office proposes two conventions for submitted files:

- Case 1: all parameters (x, y, UT1-UTC, LOD, dPsi, dEps, dX, dY) reside in a single file. Not predicted parameters have to be filled up with NaN, nan, NA, or -999999. Please, use only these values for unpredicted parameter and use the parameter order given by the Office (Table 1).

Table 1. Parameter order

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9
MJD	x	y	UT1-UTC	LOD	dPsi	dEps	dX	dY

- Case 2 (recommended): one file per parameter distinguished by assigned suffix. Only files for predicted parameters will be submitted then.

b) daily sampling, all values should be given for 0h UTC;
c) each file should start with values for day zero 0h UTC (first value in the file is the value observed for 0h UTC of day zero i.e. Wednesday, and the following values are predictions for the next days);
d) maximum forecast horizon is 365 days, shorter forecasts are possible. In contrast to the previous campaign, there is no pre-definition of forecast classes (the required prediction length is not specified, only the maximum length, i.e. 365 days).
e) files should contain prediction data only (i.e. without any additional text e.g. header),
f) Candidates can change cases for data submissions during the campaign,
g) whitespace is required as delimiter between each parameter,
h) recommended parameter numeric formats are presented in Table 2 (the Office does not define the field length).

Table 2. Recommended parameter numeric formats

MJD	x	y	UT1-UTC	LOD	dPsi	dEps	dX	dY
	arcsec	arcsec	sec	msec. of time	msec. of arc	msec. of arc	msec. of arc	msec. of arc
5d	.8f	.8f	.9f	.6f	.5f	.5f	.5f	.5f

2) File naming convention

File names should be created according the following scheme:

a) All predicted parameters in one file

eoppcc_<ID>_<MJD day zero>.txt

b) Parameters in separated files

eoppcc_<ID>_<MJD day zero>_<parameter>.txt

where:

ID - Candidate Identifier assigned during registration

MJD day zero - submission day

Parameter suffixes:

p – x, y of the pole;

u – UT1-UTC;

l – LOD;

e – dPsi, dEps;

n – dX, dY.

4. Examples

Case 1

ID = 111
MJD = 59298
Example for x, y, UT1-UTC, LOD, dPsi, dEps, dX, dY
Filename: eoppcc_111_59298.txt

```
59298 0.07276100 0.40785000 -0.170526400 -0.060000 -106.26700   -8.91700    0.20124   -0.00123
59299 0.07377600 0.40898600 -0.170588600 0.198500 -106.18000   -9.15700    0.23884    0.02321
59300 0.07499800 0.40960900 -0.170920800 0.449400 -105.83600   -9.22300    0.21686    0.04541
59301 0.07657300 0.40985100 -0.171478800 0.674700 -105.37100   -9.00800    0.19153    0.06832
59302 0.07818600 0.41013700 -0.172244000 0.821500 -105.26200   -8.71700    0.16004    0.07111
59303 0.07955500 0.41051700 -0.173053500 0.763400 -105.70900   -8.65000    0.16000    0.05001
59304 0.08066800 0.41106700 -0.173733200 0.592400 -106.34900   -8.84300    0.17002    0.01194
```

Example for x, y, UT1-UTC, LOD, dPsi, dEps, dX, dY with unpredicted UT1-UTC
Filename: eoppcc_111_59298.txt

```
59298 0.07276100 0.40785000         NaN -0.060000 -106.26700   -8.91700    0.20124   -0.00123
59299 0.07377600 0.40898600         NaN 0.198500 -106.18000   -9.15700    0.23884    0.02321
59300 0.07499800 0.40960900         NaN 0.449400 -105.83600   -9.22300    0.21686    0.04541
59301 0.07657300 0.40985100         NaN 0.674700 -105.37100   -9.00800    0.19153    0.06832
59302 0.07818600 0.41013700         NaN 0.821500 -105.26200   -8.71700    0.16004    0.07111
59303 0.07955500 0.41051700         NaN 0.763400 -105.70900   -8.65000    0.16000    0.05001
59304 0.08066800 0.41106700         NaN 0.592400 -106.34900   -8.84300    0.17002    0.01194
```

Case 2

ID = 111
MJD = 59298
Filename: eoppcc_111_59298_p.txt
Example for x, y only

```
59298 0.07300000 0.40800000
59299 0.07390000 0.40930000
59300 0.07480000 0.41060000
59301 0.07560000 0.41180000
59302 0.07640000 0.41290000
59303 0.07730000 0.41400000
59304 0.07820000 0.41510000
```

5. Data policy

All individual submissions will be stored at the Office and will be treated confidentially until the final comparison of each set of predictions will be done. The results are compared and judged by the organizers at Space Research Centre, Polish Academy of Sciences. The reference against which the predictions will be compared is the IERS EOPC04 series. As soon as alternative final EOP solutions become available (e.g., from ESA, JPL, or any of the ITRF combination centers), individual submissions will be also evaluated by the office against those alternative series.