

January 7 th. , 2019

Dear A1 commission member,

First of all, let me send you my Best Wishes for the year 2019, which is in particular the occasion to celebrate the centennial of the IAU Commission “Rotation of the Earth” (see Symposium Journées in sect.4).

### **1. ESLAB#53 - The Gaia Universe (deadline January 20<sup>th</sup>.)**

Gaia Data Release 2 took place on 25 April 2018. The scientific community has since been using the data intensively exploring topics ranging from the Solar System to quasars. In the first months after the release, hundreds of publications using Gaia DR2 data have appeared. In one year time, one can anticipate a wealth of studies having been completed. Early 2019 is an excellent time to see the progress made with the Gaia data and to get together at ESTEC, Noordwijk, The Netherlands from 8 until 12 April 2019. The ESLAB #53 "The Gaia Universe" conference will cover all research areas addressed by Gaia.

Abstract submission is now closed. A notification of selected talks and posters will be sent out on 14 January 2019. When you submitted your abstract, please remember to also register yourself. Early registration deadline is 20 January. Participate to learn all about the most recent Gaia science at the ESLAB, from 8 to 12 April 2019 at ESTEC, The Netherlands.

<https://www.cosmos.esa.int/web/53rd-eslab-symposium/home>

### **2. Gaia Newsletter**

For staying up to date with Gaia one can also subscribe to the Gaia Newsletter. See the following web-page for more details:

<https://www.cosmos.esa.int/web/gaia/newsletter>

### **3. Gaia DR2 impact (forwarded by A.G.A. Brown)**

Since April 25 2018 over 500 papers have appeared that make use of Gaia DR2 data, and will eventually make it in into the refereed literature (this is conservative count from scanning arXiv mailings, the number of citations to the Gaia DR2 data

processing papers on ADS is already over 1000). A video with a nice overview of some of the results was posted on the Gaia web pages:

<https://youtu.be/NwxYp5nBNZI>

If you have a result based on the use of Gaia data which you would like to communicate to a wider audience, here is the information on how to communicate your results through the ESA web pages:

<https://www.cosmos.esa.int/web/gaia/communicating-your-results>

This is not exclusive to those working in ESA member states, anyone around the world can send in their ideas for communicating Gaia science results.

### Nominal mission end, and mission extension

The nominal 5 year Gaia mission already ends in July 2019. The first extension to the end of 2020 has been approved by the ESA Science Policy Council and the preliminary approval for 2021 and 2022 was also given.

In July 2019 a large manoeuvre will be executed to avoid an eclipse of the sun by the earth (as seen from Gaia) and to ensure that no such eclipse occurs for the duration of the extended mission. The manoeuvre will be followed by the first year of extended mission operations and during this first year the precession motion of the spacecraft spin axis will be reversed. This allows breaking a degeneracy in the astrometric solution between the parallax factor of a source and its rate of across-scan motion. After the first year of the extended mission the spin axis precession motion will return to normal. Additional small tweaks to the scan law will be made to maximize the opportunities for observing bright stars close to Jupiter's limb.

### Gaia Data Processing and Analysis Consortium Status

The first iteration of the astrometric solution for Gaia DR3 has been completed and this will trigger the start in January of the photometric processing followed by the preparatory steps of many of the other DPAC processing chains, including extensive validation runs. Later in 2019 a second iteration of the astrometric solution will take place after refinements of the PSF calibrations and image locations which takes place in early 2019.

## **4. Colloquium “Journées” in October 7-8-9, 2019**

A colloquium entitled “*Journées 2019 : Astrometry, Earth Rotation and Reference Systems in the Gaia era*” will be held at Paris Observatory on October 7<sup>th</sup>, 8<sup>th</sup> and 9<sup>th</sup>, 2019. This symposium will be organized jointly by IAU commissions A1 and A2

(Rotation of the Earth). A large place will be devoted to our A1 commission topics. It will also be the occasion to celebrate the 100<sup>th</sup> birthday of commission A2 (formerly named commission 19).

Further detailed information about program, schedule, abstracts and deadlines will be sent in the next weeks.