

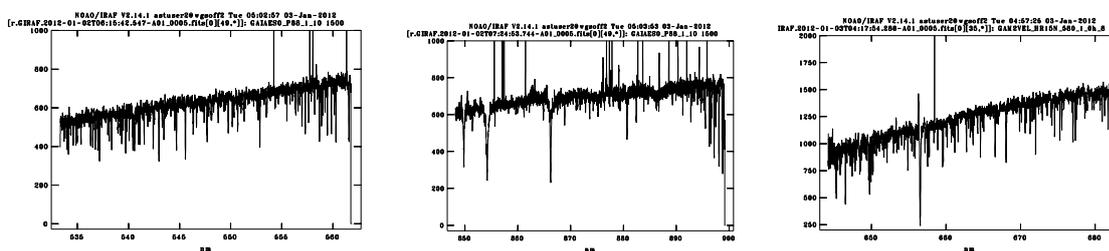
# The Gaia-ESO Survey – January 2012 progress report

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## 1. First Light.

The first observing run started on 31-12-2011, with observers Thomas Bensby and Christophe Martayan. Three nights were clear with good seeing, two cloudy. One 5-night run per month is currently scheduled until September (P88 + P89), and observations are anticipated to continue at a rate of 30N/semester until P94, when ESO will have a full review of Survey performance. The observers for each run are listed on the WG0 wiki.

The very first science observations focused on a Milky Way field at  $(l,b) = (175,-50)$ , and the young cluster gamma-2 Velorum. The first Giraffe spectra are shown below. Pipeline reduction of all acquired spectra is already underway at Cambridge/Keele (Giraffe) and Arcetri (UVES).



First Gaia-ESO Survey science spectra.

LHS: HR10 spectrum of a field star. Middle: HR21 spectrum of the same star. RHS: HR15N spectrum of a candidate member of the cluster GAM2VEL. All exposures are 1500 sec single exposures (of 4 typically), reduced with the online system by Thomas Bensby.

Target selection priorities for the first runs are to complete data taking on the full range of types of science and calibration targets planned. This will ensure robust testing of the data processing and analysis systems, and deliver completed data sets for early science analysis. An updated list of targets for which data taking has been completed, planned targets for the next runs, and the status of data processing, will be available on the Survey wiki, to assist planning for science verification and early science analyses.

We describe further below how to get involved in early science analysis of these first Gaia-ESO Survey data.

## **2. How to keep up to date with Survey activities and progress**

A Survey project on this scale involves a lot of work from a lot of people. Formal structures and procedures are necessary for efficiency. All the Survey policy, progress, and activity is recorded on the Survey wiki, available at <http://great.ast.cam.ac.uk/GESwiki/GESHome>. An account there will keep you up to date.

The wiki now makes available on its front page the several policy documents regarding Survey publication policy, including the requirements on co-authorship; team membership; use of private supplementary data; recording of planned science projects; and the Survey Management Plan, agreed between the ESO Survey Team and the Co-PIs. The Survey Management Plan is our contract with ESO, and is the primary document defining the Survey and our science deliverables.

All other Survey policies are agreed by the Co-PIs and the Steering Committee, and become Survey rules. Survey management meeting minutes are posted on the wiki. Any Co-I may ensure inclusion of an item on a Steering Committee agenda by request.

By far the most effective way to find out the very many activities underway inside the Gaia-ESO Survey project is to read the Survey Management Plan, and to look on the wiki WG pages. You will see a very great deal of activity from very many people, all focussed on delivering high-quality, well-quantified data ready for scientific analysis.

The publication policy is designed to ensure adequate recognition of these efforts. Among other issues, it defines authorship classes, including Builders and Co-Is. Updated lists of members of these categories will be maintained on the wiki.

The wiki is also the place where proposals for science verification projects and early-science draft papers should be posted. All science papers from the Gaia-ESO Survey must be placed on the wiki at minimum 3 weeks before journal submission, to allow co-authorship requests and contributions. The wiki is also where plans to follow-up sources discovered to be interesting from Gaia-ESO data must be recorded, to allow scientific collaborations to form.

## **3. Science verification and early science— how to get involved**

As soon as data reach science verification quality, the Co-PIs will circulate the news to all Survey Co-Is, together with up-dated information on how to access the archive. It is not too early to start preparing for science analysis! Post your proposed projects to the wiki. This will allow potential collaborations to form, and will allow us to identify areas where we need to encourage activity. Early science, lots of science, quality science, is our focus and motivation.

We wish to encourage early science in as many fields as is possible, while allowing all Co-Is freedom to initiate their own analyses. To help with identification of projects, and consortium building, early in the Survey we have established a set of 14 very broad science “topics”. Each topic will have a coordinator, whose task is to ensure that all Co-Is are able to propose any topic, and to help with internal discussion and resolve possible collaboration and project

overlaps. The aim is to maximise activity as we all learn what Gaia-ESO can deliver, ensuring we do not overlook potential early science by assuming someone else is doing it. The 14 categories structure the wiki projects pages, and are:

i) local field dwarfs; ii) inner galaxy giants  $|b| > 15\text{deg}$ ; iii) inner Galaxy,  $|b| < 15\text{deg}$ ; iv) thick disk; v) halo; vi) thin disc  $|b| < 10\text{deg}$ ; vii) calibrations/standards; viii) cluster membership and global properties; ix) cluster kinematics; x) cluster abundances; xi) cluster stellar properties; xii) joint cluster-field analyses; xiii) technical analyses, methods; xiv) other projects. This division is for convenience, not constraint: projects cutting across these notional boundaries are of course encouraged.

Scientific project announcements, publications, and possible observational follow-up of science results are described in the several policy documents available on the wiki. We note that there are no “protected” science topics, and that registering an interest in a subject, or submitting a draft paper, does not preclude other analyses of the same topic or data by other groups of Co-Is. Scientific collaboration is desirable, but complementary analyses are also encouraged.

## 4. Accessing the science data for analysis

**Scientific participation in the Gaia-ESO Survey is explicitly conditional on formal acceptance of all the Survey policy documents available on the wiki.**

Please read the publication policy document carefully!

A key statement is that “Only ‘best’ parameters held in the Edinburgh archive are to be published, without prior special agreement with the Co-PIs”. That is, science analysis can start when data are available in the Edinburgh archive – see WG18 on the wiki for details. This applies to all Co-Is. The data which will be available will include, as described in the Survey Management Plan, target selection photometry, all astrophysical parameters which can be derived from a spectrum, given the spectrum signal-noise and object type, and “quantitative uncertainties on the delivered quantities, derived from the multiple reduction systems implemented”:  $\text{param} = \langle \text{value} \rangle \pm [\text{random}] \pm [\text{systematic}]$ .

That is both random and method-dependent systematic errors will be available. When data reach the archive they are available for analysis. This includes all the photometric data used in target selection. We intend to make as much data as is possible available as soon as is feasible, for internal science verification analysis.

Early in the Survey, as systems and calibrations evolve, science verification will identify necessary improvements – early communications of results, puzzles, anomalies, etc to the Co-PIs will be essential to have the lessons from science verification rapidly implemented in the processing pipelines.

## 5. Volunteers Needed

The publication policy includes formation of a new College of Readers, formed from volunteers among the Co-Is. This College is to ensure draft papers placed on the wiki are read by at least two (knowledgeable) Survey Co-Is prior to journal submission. Volunteers to join

the list of those prepared to read an occasional draft paper, and/or to form the small team to coordinate this Group, are requested.

We have registered the Survey web name, [www.Gaia-ESO.eu](http://www.Gaia-ESO.eu), but the web pages are not yet written. Volunteers to assist with this are very welcome!

## **6. Other activity**

All the internal activities of the Survey are being detailed in a single document, the Survey Implementation Plan. This defines data flows, timescales, interfaces, and responsibilities. This document is in preparation.

The complementary AEGIS survey, using the AAT 2dF facility, is successfully underway. AEGIS is based on the multi-passband SkyMapper photometric survey. Fainter SkyMapper targets will be included in Gaia-ESO. Follow-up of these fainter sources in collaboration is encouraged, with each proposed project led by Stefan Keller, the AEGIS PI.

Several relevant meetings and workshops have been proposed for GREAT funding. We hope to maintain a list of such activities on the Gaia-ESO wiki and web site.

Best wishes for a successful 2012 for the Gaia-ESO consortium

Gerry Gilmore & Sofia Randich