

Evaluation of the ELSA School on the Science of Gaia based on participants' responses to the questionnaire

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1. Background

The ELSA School on the Science of Gaia was held on 19–28 November 2007 at the Lorentz Center in Leiden (The Netherlands). The aim of the workshop was to provide the participants with an extensive overview of the science goals of the Gaia mission. This was also the first time (nearly) all of the ELSA Fellows (ESRs and ERs) were brought together, so the workshop was also very important for personal contacts and network building.

In the first week there were two lectures each morning on specific topics from Gaia's science programme. These lectures were accompanied by exercises to be carried out by the participants in the afternoon sessions. The results of the exercises were presented and discussed during the last day of the first week. During the three days in the second week there were lectures on ESA's science programme and various technical aspects of the mission. The complete programme is listed in **Annex 1**.

The second meeting of the ELSA Steering Committee was held on 23 November as part of the programme and was attended by 12 of the ELSA Fellows (the minutes are available in the document ELSA-SC-002). This was an important opportunity for the fellows to obtain an overview of the goals, rules and methods of the network, and to participate in its management and planning.

2. Participants

The workshop was primarily intended for ELSA PhD students and postdocs but was open to a limited number of participants from outside the network. The student and postdoc participants were asked to prepare and bring with them a poster describing their previous work or intended ELSA project.

The total number of participants was 53, viz.:

ELSA Early Stage Researchers	9
ELSA Experienced Researchers	4
external students/junior researchers	12
ELSA Scientists in Charge	13
external experts (lecturers etc)	15

3. Questionnaire and replies

After the workshop, the questionnaire in **Annex 2** was sent to all participants of the first three categories above, i.e. in total 25 persons. A total of 17 replies were eventually received, on which the present evaluation is based.

The questionnaire consists of 20 questions and the participants were asked to give their answers on a numerical scale from 1 to 5. For most of the questions "5" would be the best grade, but for a few of them a grade of "3" is optimal. The summary statistics in **Table 1** is divided accordingly.

Comments received in connection with the questions are listed in **Table 2**.

4. Some conclusions

Among the things that received high marks were the practical arrangements (equipment, introduction to workplace, availability of teaching staff and opportunity for interaction with other students). Also the objectives of the workshop were perceived to be clear.

The general organization, mix of topics, social activities and opportunity for interaction with teachers (outside of the lectures) were also generally appreciated.

For most of the students, the workshop did not enhance the programming/computing skills or the skills in their own subject areas, although a few said that it did very much so. Apparently, the outcome in this respect depends very much on the background and prior skills of each participant. The replies to these questions (5–7) had an unusually large dispersion (>1).

In general the overall workload and the length of the workshop and lectures were perceived to be appropriate, although a few students thought the workload was far too big and/or the workshop far too long.

From several comments received, it appears that the exercises were not so much appreciated by most of the students – they took too long in relation to what was achieved.

In summary, the workshop was successful in its main goals of bringing the ELSA Fellows together in a stimulating environment and providing a broad overview of the Gaia science goals. The secondary goals of deepening their understanding of specific topics through exercises and of enhancing some skills (e.g. presentation techniques and programming) were not so well achieved, partly as a result of the very different backgrounds of the participants.

Table 1. Summary of questionnaire replies

Question No.	Question	Applicable / not applicable replies	1	2	3	4	5	Mean value	Dispersion
Questions where "5" is the best grade (1 = no, not at all, 3 = undecided, 5 = yes, very much so)									
1	Were the objectives of the workshop clear?	17/0	0	0	0	3	14	4.8	0.38
2	Was the mix of topics discussed right?	17/0	0	0	2	8	7	4.3	0.67
3	Did you gain a good understanding of the subjects covered by the workshop?	17/0	0	1	2	11	3	3.9	0.73
4	Did the workshop stimulate your interest in the subject areas covered?	17/0	1	0	1	7	8	4.2	1.00
5	Did you enhance your skills in the subject area of your work as a result of the workshop?	16/1	2	4	5	3	2	2.9	1.20
6	Did you enhance your skills in programming/computing as a result of the workshop?	17/0	9	4	1	1	2	2.0	1.27
7	Did you enhance your skills in presenting your work as a result of the workshop?	17/0	3	2	4	4	4	3.2	1.39
8	Was there reasonable opportunity for interaction with lecturers and other senior participants during the workshop?	17/0	0	2	0	4	11	4.4	0.97
9	Was there reasonable opportunity for interaction with other students during the workshop?	17/0	0	0	0	4	13	4.8	0.42
10	Did you receive useful feedback on your project work?	16/1	1	2	6	5	2	3.3	1.04
11	Were teaching staff available for consultation?	17/0	0	0	0	4	13	4.8	0.42
14	Was the workshop well organized (for example with respect to the order of the various activities, and the time allotted for the activities)?	17/0	0	1	2	5	9	4.3	0.89
15	Was there adequate time for social activities and relaxation?	17/0	0	2	1	4	10	4.3	1.02
18	Was there adequate student/teacher interaction during the lectures?	16/1	1	3	5	2	5	3.4	1.27
19	Was the workplace adequately equipped (furniture, computer, whiteboard, ...)?	17/0	0	0	0	0	17	5.0	0.00
20	Did you receive adequately introduction to your workplace?	17/0	0	0	1	2	14	4.8	0.55
Questions where "3" is the best grade (1 = far too small/short, 3 = appropriate, 5 = far too big/long)									
12	Was the workload during the workshop appropriate?	16/1	0	0	7	7	2	3.7	0.68
13	Was the workload for preparations before the workshop appropriate?	16/1	0	1	15	0	0	2.9	0.24
16	Was the overall length of the workshop appropriate?	17/0	0	1	10	5	1	3.4	0.68
17	Was the length of the lectures appropriate?	17/0	0	1	10	6	0	3.3	0.57

Table 2. Comments received in connection with the questions (sorted by question and slightly paraphrased and/or shortened)

1. -
2. - a bit too much information but well done
3. - it would have been useful if everyone followed a standardised template for the contents of their presentations - e.g. history, current topics, theory, results
4. - only if the lecturer was stimulating and interested
5. -
6. -
7. - the brief presentation and poster production were useful; more time could be given to presentations, instead of exercises
- we should have had some kind of feedback from the organisers on this
8. -
9. -
10. - it would have been useful to have a comments sheet next to each poster
11. -
12. - I'm not sure how much was garnered from the exercises
13. -
14. - exercise activity was underestimated
- the workshop was well organized but too dense
- the project was one of the most interesting parts, but it needed more time
15. -
16. - one week would have been sufficient - there could have been more lectures per day
17. - the only problem is the really wide range of subjects to cover
- perhaps they should be sliced in two different days, 45 min each
18. - no interaction as far as I can remember
- having two students listed to ask questions after the lecture is a good way to begin discussions
19. -
20. -

Lectures that some participants found particularly useful or good (in parentheses is the number of participants who specifically mentioned these lecturers):

Turon (5)

Helmi, Klioner, Sozzetti (3)

Wilkinson (2)

Brown, Feltzing, Korn, Lebreton, Sarri, Short, Tanga (1)

A few participants felt that the presentations by Moisson and Binney were less relevant to the workshop.

Annex 1

Workshop programme

Monday 19/11

- 09:30 – 09:45 Welcome by Lorentz Center staff and observatory director
 09:45 – 11:15 **Yveline Lebreton**: Stars: internal structure and evolution
coffee
 11:45 – 13:15 **Andreas Korn**: Stellar atmospheres
lunch
 14:15 – 14:45 Introduction to exercises
 14:45 onwards Students work on exercises
 17:00 *Wine and Cheese*

Tuesday 20/11

- 09:00 – 10:30 **Annie Robin**: Galactic structure and evolution
coffee
 11:00 – 12:30 **Mark Wilkinson**: Structure and dynamics of the Local Group
lunch
 13:30 onwards Students work on exercises

Wednesday 21/11

- 09:00 – 10:30 **Amina Helmi**: Formation and evolution of the Galaxy
 in a cosmological context
coffee
 11:00 – 12:30 **Sofia Feltzing**: Chemical enrichment history of the Galaxy
 as encoded in its stars
lunch
 13:30 – 15:00 Poster presentation and discussion
tea/coffee
 15:30 – 17:00 Poster presentation and discussion

Thursday 22/11

- 09:00 – 10:30 **Jean Louis Halbwachs**: Binary stars
coffee
 11:00 – 12:30 **Alessandro Sozzetti**: Exoplanets
lunch
 13:30 onwards Students work on exercises
 16:00 **Floor van Leeuwen**: Observatory colloquium on
 "The role of astrometry in astronomical research"

19:30 *Social dinner at restaurant Asian Palace, Leiden town centre*

Friday 23/11

- 09:00 – 10:30 **Sergei Klioner:** Fundamental physics with Gaia
coffee
- 11:00 – 12:00 **Paolo Tanga:** Gaia: an unprecedented observatory
 for solar system objects
lunch
- 13:30 – 15:00 Presentation exercise results and discussion
tea/coffee
- 15:00 – 17:00 Presentation exercise results and discussion

Saturday 24/11 Visit to ESTEC test centre

Monday 26/11

- 09:00 – 10:00 **Camiel Plevier:** Grid computing
coffee
- 10:30 – 12:00 Workshop: Live Grid
lunch
- 13:00 – 13:30 **Lennart Lindgren:** Parallelization in the Astrometric
 Global Iterative Solution (AGIS)
- 13:30 – 14:00 **Johan de Vries:** Tropomi Integrated Development Environment
- 14:00 – 17:00 **Steering committee meeting**
 17:00 *Wine and Cheese*

Tuesday 27/11

- 09:00 – 10:30 **Catherine Turon:** The building of ESA's science programme
coffee
- 11:00 – 12:30 **Guisepe Sarri:** Gaia as Science Mission case
lunch
- 13:30 – 15:00 **Xavier Moisson:** Spacecraft development
tea/coffee
- 15:30 – 17:00 **Alex Short:** Radiation damage and Gaia CCDs [special session]

Wednesday 28/11

- 09:00 – 10:30 **Anthony Brown:** Interpretation of astrometric survey data
coffee
- 11:00 – 12:30 **James Binney:** Gaia in context
lunch

End of workshop

Annex 2

Questionnaire

Please answer the following questions (#1–20) on a scale from 1 to 5, where the meaning of the numbers 1, 3 and 5 is explained after each question. Numbers 2 and 4 should obviously be used for intermediate opinions. "Undecided" means that you do not have a decided opinion either way. If you think a question does not apply to you, please answer with a zero ("0").

1. Were the objectives of the workshop clear?
(1 = no, not at all, 3 = undecided, 5 = yes, very clear)
2. Was the mix of topics discussed right?
(1 = no, not at all, 3 = undecided, 5 = yes, very much so)
3. Did you gain a good understanding of the subjects covered by the workshop?
(1 = no, not at all, 3 = undecided, 5 = yes, very much so)
4. Did the workshop stimulate your interest in the subject areas covered?
(1 = no, not at all, 3 = undecided, 5 = yes, very much so)
5. Did you enhance your skills in the subject area of your work as a result of the workshop?
(1 = no, not at all, 3 = undecided, 5 = yes, very much so)
6. Did you enhance your skills in programming/computing as a result of the workshop?
(1 = no, not at all, 3 = undecided, 5 = yes, very much so)
7. Did you enhance your skills in presenting your work as a result of the workshop?
(1 = no, not at all, 3 = undecided, 5 = yes, very much so)
8. Was there reasonable opportunity for interaction with lecturers and other senior participants during the workshop?
(1 = no, not at all, 3 = undecided, 5 = yes, very much so)
9. Was there reasonable opportunity for interaction with other students during the workshop?
(1 = no, not at all, 3 = undecided, 5 = yes, very much so)
10. Did you receive useful feedback on your project work?
(1 = no, not at all, 3 = undecided, 5 = yes, very much so)
11. Were teaching staff available for consultation?
(1 = no, not at all, 3 = undecided, 5 = yes, very much so)
12. Was the workload during the workshop appropriate?
(1 = far too small, 3 = appropriate, 5 = far too big)
13. Was the workload for preparations before the workshop appropriate?
(1 = far too small, 3 = appropriate, 5 = far too big)

14. Was the workshop well organized (for example with respect to the order of the various activities, and the time allotted for the activities)?
(1 = no, not at all, 3 = undecided, 5 = yes, very much so)
15. Was there adequate time for social activities and relaxation?
(1 = no, not at all, 3 = undecided, 5 = yes, very much so)
16. Was the overall length of the workshop appropriate?
(1 = far too short, 3 = appropriate, 5 = far too long)
17. Was the length of the lectures appropriate?
(1 = far too short, 3 = appropriate, 5 = far too long)
18. Was there adequate student/teacher interaction during the lectures?
(1 = no, not at all, 3 = undecided, 5 = yes, very much so)
19. Was the workplace adequately equipped (furniture, computer, whiteboard, ...)?
(1 = no, not at all, 3 = undecided, 5 = yes, very much so)
20. Did you receive adequately introduction to your workplace?
(1 = no, not at all, 3 = undecided, 5 = yes, very much so)

Feedback on specific lectures (the lecture programme, including most of the presentations, are available at URL <http://www.astro.lu.se/ELSA/pages/N2info.html>):

- A. Please mention if you found any of the lectures particularly useful, or good in other ways, and explain why (you may mention any number of lectures here).
- B. Please mention if you found any of the lectures less useful, or bad in other ways, and explain why (you may mention any number of lectures here).