The Gaia Mission overview

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Title

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ESA’s Gaia mission has one main goal:, to map the Milky Way more extensively and with far greater precision than any other mission to date.

Advancing astrometry, the science of measuring the distance and motion of stars, Gaia will build on the legacy of ESA’s previous mission Hypparcos and map a billion stars over a 5-year period to produce a comprehensive catalogue of data that will impact on many areas of space science.

*Images- Gaia assembly of Sunshield, integration Kourou oct 2013 then animation of Gaia scanning the sky /ESA June 2013.*

10:00:37:00

Timo Prusti, Gaia project scientist, 10 2013, Kourou,

**“In the future probably all satellites all telescopes, when they are deciding where am I actually looking at the moment, that where I’m looking is going to be based on the Gaia catalogue, the positions of stars measured by Gaia.”**

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VO: To make this catalogue; Gaia will scan the sky from an extremely stable orbit with 2 telescopes, observing each and every star up to 70 times in the life of the spacecraft. Its 3 onboard instruments will allow it to map the position, the chemical composition, the temperature, and the movement of the stars.. It’s the combination of all these measurements that will enable scientists to get a far better understanding of the Milky Way.

*Images- continuation of animation of Gaia scanning the sky and Map of Galaxy then interior of Gaia ESA June 2013, then Optical Bench being worked on in clean room in Astrium February 2013.*

10:01:16:00

Guiseppe Sarri , Gaia project Manager, Kourou OCT 2013

**The purpose is to make a very detailed and accurate 3 dimensional Map of 1 billion stars of our galaxy/ big cut / And that will allow to understand better the evolution and formation, evolution in the past in the future of our galaxy**

*Image- image of Galaxy June 2013*

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VO: This level of accuracy is only possible with the development of new mission- specific technologies. These include the largest CCD focal plane ever flown, an ultra stable diamond- hard optical bench and mirrors made from silicium carbide, a huge 10 meter Sunshield to keep temperatures stable, and finally a system of cold gas micro thrusters designed to maximize stability and precision of orientation.

*Images- Gaia in clean room and close up of focal plane Astrium Sep 2013 ,Then animation of interior of Gaia ESA june 2013, then animation of focal plane ESA june 2007. then Optical Bench being worked on in clean room in Astrium February 2013, then close up of micro thrusters Astrium Sep 2013 ending on animation of underside of Gaia moving off into the distance Astrium June 2013.*

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Guissepe Sari, Gaia project manager, ESA, Astrium France Sep 2013

**The technology which is involved is exceptional, everything has been designed developed on purpose, so it’s a bunch of technology which makes the spacecraft very difficult, /cut/ and I think did all what we needed to do in terms of design, development testing, we never cut corner, therefore we are quite confident that this will be a wonderful mission**

*Images- Final integration and Sunshield deployment Kourou Oct 2013,*

10:02:24:00

VO:But it wasn’t just a technological effort. At the peak of the project there were up to 50 companies and 2000 people from all over Europe working on Gaia.

*Images- Unloading Gaia and unpacking and integration, Kourou Oct 2013,*

10:02:34:00

Guissepe Sari, Gaia project manager, ESA, Astrium France 2013\_09\_27

**.., it's a major human feat, not only a technological effort, but it was a major human effort, so I feel that really we are going to accomplish something now but it's an accomplishment of a real community, of Europe,**

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VO: And this process will continue on through the lifetime of Gaia. On an average day the mission will produce around four hundred million measurements, which will be analyzed and processed by a consortium of 500 astronomers and engineers throughout Europe. These will eventually create a detailed 3D map of the sky, which will give us a completely new understanding of our Galaxy, the Milky Way.

*Images- Antennae, then images of scientists from ESAC ESA’s astronomy centre Spain 2008, then image of Galaxy from June 2013, ending on time lapse of Starry night* at Pic du Midi observatory, France, taken by Romain Montagut (credits)

10 :03:17:00

End of a-roll and beginning of b-roll

10:03:17:00

ITW Timo Prusti, Gaia project scientist, Kourou Oct 2013 (dutch) talking about Gaia results being new reference.

10:03:48:00

ITW: Guiseppe Sarri , Gaia project Manager, Kourou OCT 2013 (English/complete answer) talking about Gaia mapping the sky.

10:04:53:00

ITW Guissepe Sari, Gaia project Manager, Kourou OCT 2013 (English/complete answer) talking about Technology.

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ITW: Guissepe Sari, Gaia project manager, ESA, Atrium France Sep 2013, (English) talking about human effort.

10:06:16:00

Gaia prelaunch integration Kourou, OCT 2013 :

Unloading (6 shots)

clean room : Opening Gaia ,sunshield integration, deployment (60 shots)

10:13:20:00

End of b-roll