

Science teaching in space: the ESA teachers workshop

Meet an astronaut, cook a comet and plan a trip to Mars. **Shamim Hartevelt** introduces a recent teacher workshop at ESA.

This composite image shows a SOHO image of the Sun and an artist's impression of Earth's magnetosphere



Space can be a great topic for capturing the imagination of school children – or indeed adults. It certainly inspired the 40 secondary-school science teachers who were invited to the European Space Agency (ESA^{w1})'s technology centre in Noordwijk, the Netherlands, for a four-day workshop in July 2011.

Hands-on activities, lectures, presentations and a meeting with an astronaut – ESA's second summer workshop for teachers was packed with action and ideas to use in the classroom and share with colleagues. The teachers learnt how to cook a comet, plan a trip to Mars, hunt for exoplanets and build bridges between art, science and language. They also looked at ESA's Earth observation activities and were introduced to Europe's fleet of Solar System and astronomy missions – all ready to be integrated into their science lessons.

In some of the lively and engaging

Image courtesy of NASA



Anu Ojha cooking a comet

workshops, the participants learned about the many valuable resources provided by ESA^{w2}. For example, the Eduspace website^{w3}, which provides secondary-school students and their teachers with learning and teaching tools about Earth observation. Or the archive of data from SOHO, the collaborative ESA-NASA project to study the Sun, from its deep core to the outer corona and the solar wind. During the workshop, the teachers learned how to use the archive tool to access over 14 years' worth of SOHO data^{w4}.

The highlight for many was a close encounter with ESA astronaut

Léopold Eyharts, who talked about living and working in space and described how ESA's Columbus laboratory was delivered to the International Space Station (to learn more about Columbus, see Wegener, 2008).

Space may sound beyond the reach of most teachers, but the workshop was not. As one happy participant, Yves Carbonnier from France, put it, "The workshop was strongly directed toward real classrooms and real teachers: no expensive materials, no sophisticated apparatus, no high-level content useless for our daily work. I'm sure that my lessons will be influenced by this workshop."

After four days, the participants left Noordwijk with their bags bulging with ESA education materials and resources^{w2} and their minds bursting with ideas and information to share with their colleagues back home.

European teachers will be invited to apply for the third workshop, taking place in Summer 2012. To be informed

when the application is open, contact isseducationteam@esa.int, asking to be added to the mailing list. The workshop will also be advertised on the ESA website and in *Science in School*. Priority will be given to those who have not attended before and to teachers who are committed to sharing what they have learned with their colleagues.

Reference

Wegener AL (2008) Laboratory in space: interview with Bernardo Patti. *Science in School* 8: 8-12. www.scienceinschool.org/2008/issue8/bernardopatti

Web references

w1 – The European Space Agency (ESA) is Europe’s gateway to space, organising programmes to find out more about Earth, its immediate space environment, our Solar System and the Universe, as well as to

Image courtesy of NASA



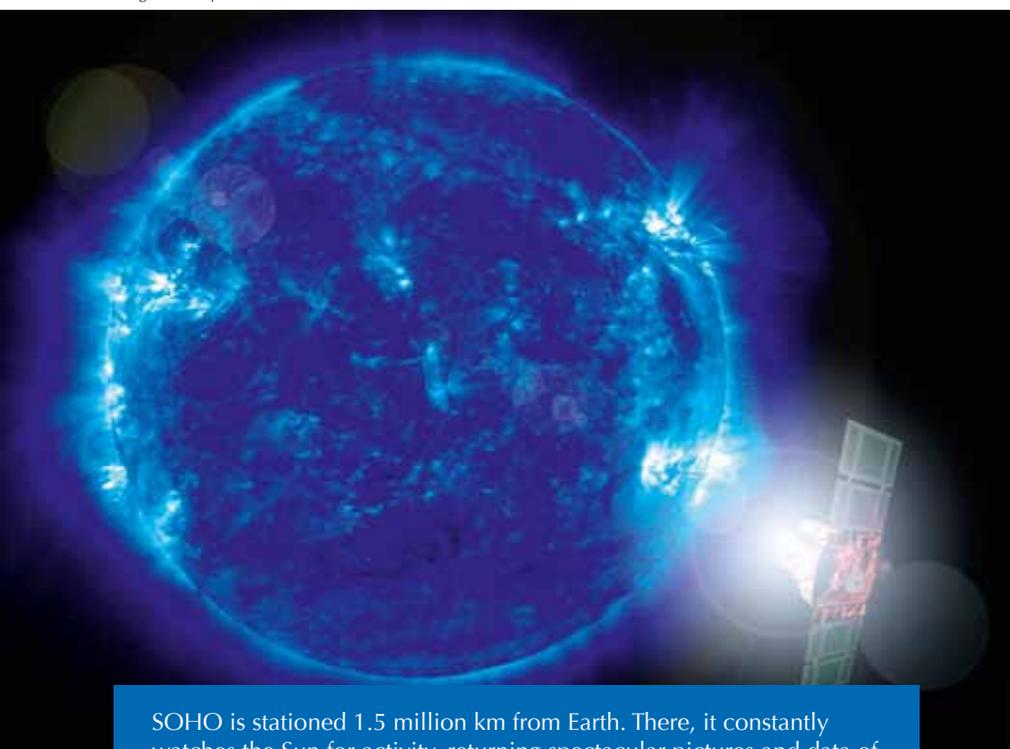
ESA astronaut Léopold Eyharts on board the International Space Station

co-operate in the human exploration of space, develop satellite-based technologies and services, and to promote European industries. See: www.esa.int

ESA is a member of EIROforum^{w5}, the publisher of *Science in School*.

w2 – To browse, order or download a wealth of space-related education materials developed by ESA, visit: www.esa.int/educationmaterials

Image courtesy of ESA



SOHO is stationed 1.5 million km from Earth. There, it constantly watches the Sun for activity, returning spectacular pictures and data of the storms that rage across its surface. SOHO was launched in 1995 and was designed to work for three years. It is still working today



The space shuttle Atlantis lifts off from the Kennedy Space Center in Florida, USA, on 7 February 2008. On board is ESA astronaut Léopold Eyharts

w3 – The Eduspace website encourages teachers to use Earth observation data in their curriculum by providing ready-made projects. See: www.esa.int/eduspace

w4 – To investigate the SOHO data archive for yourself, visit <http://soho.esac.esa.int/data/archive>

w5 – To learn more about EIROforum, see www.eiroforum.org

Resources

To learn more about ESA’s space missions, see:

Mignone C, Barnes R (2011) More than meets the eye: unravelling the cosmos at the highest energies. *Science in School* 21: 57-64. www.scienceinschool.org/2011/issue21/em

For a full list of all ESA-related articles in *Science in School*, see: www.scienceinschool.org/esa

Shamim Hartevelt-Velani is a secondary-school teacher currently working under contract at ESA’s European Space Research and Technology Centre (ESTEC), in the Human Spaceflight and Operations Directorate. She is the didactics specialist in the education unit.



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