



ESA Earth Observation educational programme

Francesco Sarti, ESA, Scientific Coordinator of the Education and Training Activities in Earth Observation

Trans-Atlantic Training – Pécs 2017

A satellite image showing a large river delta system, likely the Amazon, with a prominent dark, winding river channel cutting through a vast green landscape. The terrain is a mix of lush green vegetation and lighter, brownish-yellow areas, possibly indicating different land cover types or topography. The river flows from the top left towards the bottom right, with several smaller tributaries branching off. The overall scene is a high-resolution aerial view of a natural landscape.

EO Tools for Education

Creation of Tools for Earth Observation Education, Training and Outreach



Tools for secondary schools

1. Posters
2. Atlases
3. Multilingual web-based tools (Eduspace),
4. Educational SW package for Image Processing and GIS (LeoWorks)

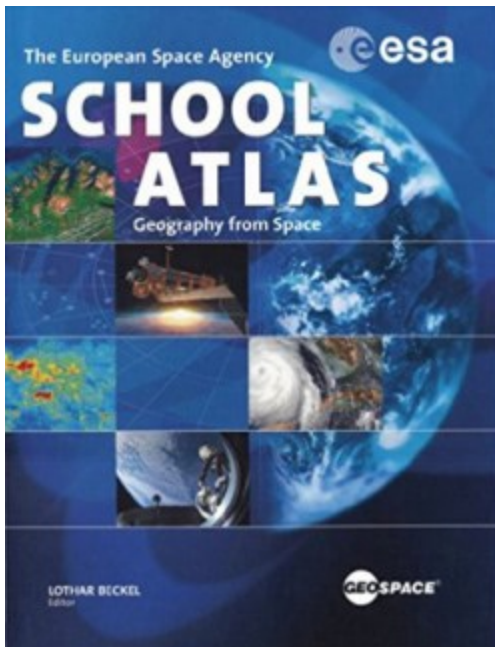
Tools for general outreach

1. i-books
2. Apps for Tablets

Tools for University level

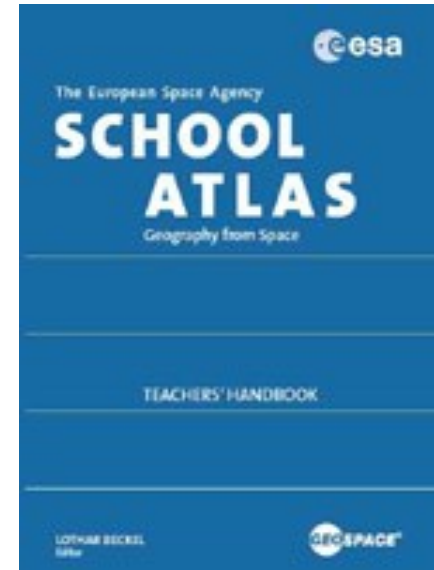
1. MOOCs
2. SAR videos
3. SNAP Tutorials
4. Thematic Exploitation Platforms (TEP's)

ESA School Atlas, new ESA Water Atlas

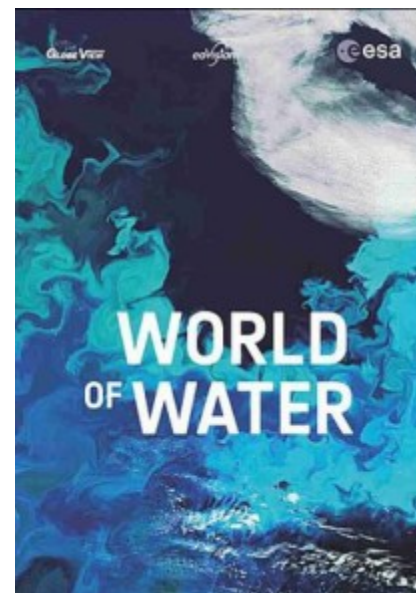


Introduction to ESA; Earth Observation; Global Overview; Continental Overview; the Natural Sphere; The Cultural Sphere.

Annex: Teachers' Handbook, DVD-ROMs with the original bands of the satellite data, handbook content and exercises, connected to Eduspace and its SW Leoworks



Describes the major issues related to water on Earth. It also presents water as a natural resource, focusing on global water, the oceans, seas, lakes and rivers of the Earth.



Both freely available in PDF from ESA web pages (<https://earth.esa.int/web/guest/eo-education-and-training>)

Eduspace: ESA web-based EO Educational tool for secondary schools



European Space Agency

ESA Education **Home** Earth from Space Environmental Issues Envisat for Schools

03-May-2010

Earth from Space:
Image of the week

About Eduspace

What is Eduspace? ▶

What tools does it offer? ▶

Languages... ▶

Remote Sensing Principles

What is remote sensing? ▶

Remote sensing in depth ▶

History of Earth observation ▶

Mapping and satellite data ▶

Satellite orbits ▶

Resource satellites ▶

Weather satellites ▶

Resources... ▶

Multimedia

Image Gallery ▶

Video Gallery ▶

MIRAVI: Earth live ▶

Services

Eduspace
Earth from Space



European Space Agency

ESA Education **Home** Weather and Climate Global Change Natural Disasters

About Eduspace

What is Eduspace? ▶

What tools does it offer? ▶

Choose your language... ▶

Remote Sensing Principles

What is remote sensing? ▶

Remote sensing in depth ▶

History of Earth observation ▶

Mapping and satellite data ▶

Satellite orbits ▶

Earth observation satellites ▶

Resources... ▶

Multimedia

Image Gallery ▶

Video Gallery ▶

Services

Contact us ▶

Search in Eduspace ▶

Search

GO

Flash floods in Thessaloniki

Floods are considered one of the most catastrophic natural disasters. They affect more people than any other natural disaster, posing serious risks for people's lives, properties and infrastructure. Due to the increasing frequency of severe flood events, as well as evidence of global climate change and rise in sea levels, floods are now considered a serious threat.

[Full story ▶](#)

The Gulf Stream

The Gulf Stream is a warm, fast flowing current that forms the western boundary of the North Atlantic Gyre. During its course, its temperature gradually drops as it releases heat into the atmosphere.

[Full story ▶](#)

Climate change and glaciers

Detecting and quantifying glacier retreat and advancement, glacier area changes, and glacier lake changes is one of the most important contributions satellite technology can make to further our understanding of climate change. For a large number of glaciers, especially those found in remote places, satellite remote sensing is the only method scientists have to study them.

06-Nov-2013

Earth from Space:
Image of the week



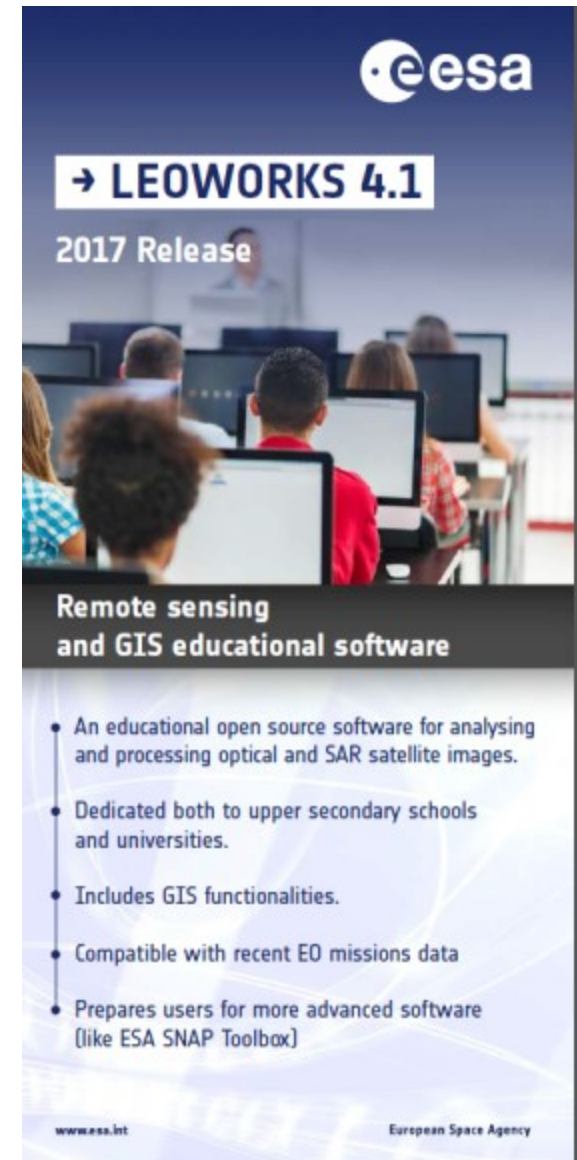
[Image archive](#)

LEOWorks 4.1

Image Processing Software



1. View images, histogram, pixel values, header info
2. Crop, invert, stretch, layer stack, etc
3. Image arithmetic, filters
4. Classification, PCA, geometric correction, pan sharpening
5. Radar and optical module (multimission, including Sentinel data)
6. GIS tools
7. Open-source, Java-based



Sentinel Application Platform (SNAP): SW toolboxes with tutorials and forum



1. Set of tutorials for SNAP
(Sentinel toolboxes)

<http://step.esa.int/main/doc/tutorials/>

1. User forum dedicated to
Sentinel toolboxes (SNAP)

<http://forum.step.esa.int/>

Tutorials

TUTORIAL CATEGORIES

SNAP (General toolbox usage)

SENTINEL-1 TOOLBOX (SAR applications)

SENTINEL-2 TOOLBOX (High resolution optical applications)

SENTINEL-3 TOOLBOX (Medium resolution optical applications)

ESA TRAINING COURSES (ESA Training Courses)

EXTERNAL RESOURCES (Other tutorials)

ALL (All tutorials)

SEARCH (11 tutorials found)

Search for tutorials...

SELECTED: SNAP (1 to 6 / 11)

Sort By (Tutorial Id) ▲



Overview

December 29, 2015

SNAP reunites all Sentinel Toolboxes in order to offer the most complex platform for this mission.



Colour Manipulation Tool

December 29, 2015

Introduction to the usage of the colour manipulation tool.



Capacity Building in the frame of International Cooperation with UNESCO



UNESCO.org / Natural Sciences / Space for Heritage

- Home Page
- The Open Initiative
- Our mission
- Current activities
- The Open Initiative
- Partners
- News & Events
- The word of the Director
- Contact
- Gallery



ESA/UNESCO Agreement signature on space technology to support the World Heritage Convention.
© ESA-M. Pedoussaut 2003

The 'Open Initiative' to Support the World

On 18 June 2003 at (France), UNESCO and signed an agreement satellites to be used to Heritage sites. The s launched the 'Open Technologies to Suppo

The 'Open Initiative' co-operation, open to space agencies, resea organizations (NGOs) and the private sector in c through, space technologies to improve their activities.

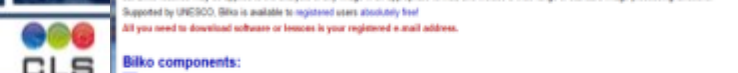
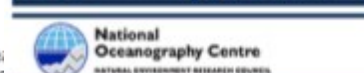
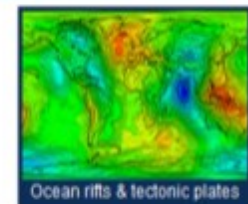
From the Kilimanjaro in Tanzania to the Gre China, there are 890 different sites on UNESCO Heritage list (April 2009). These include 689 cultural, 176 natural and 25 mixed properties in 148 States Parties. UNESCO considers 31 of them currently under threat. The idea of the Open Initiative is that data from space will be used to monitor these sites, alerting authorities to land use changes that could place the sites in danger.

The 'Open Initiative' has nowadays (May 2010) [53 partners](#) that includes space agencies, universities, research institutes and from the private sector.



A holistic framework for EO education

- Lessons on different EO applications.
- Over 200 data sets with description.
- New powerful version of the Bilko software
- Resource library with extra information and tools.
- Support for lesson writers and lesson users



I-books, Apps



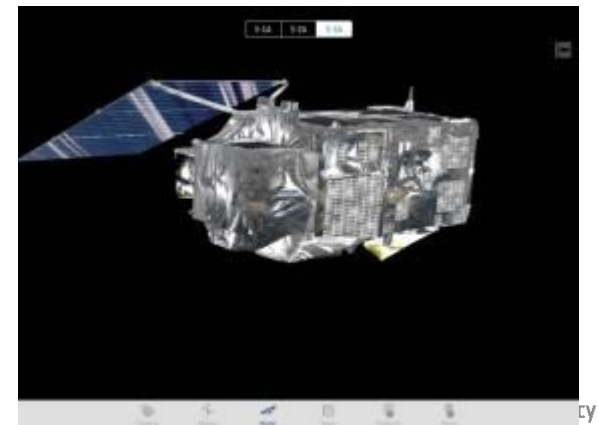
ESA Presentation | 20 June 2016 | Earth Observation Programm

ESA UNCLASSIFIED – Releasable to the Public

Sentinel App



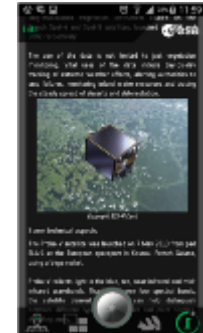
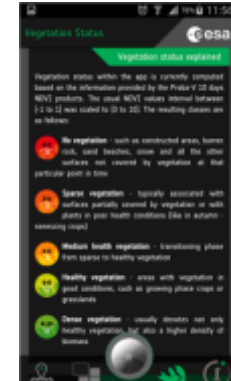
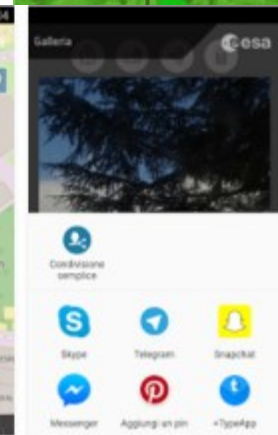
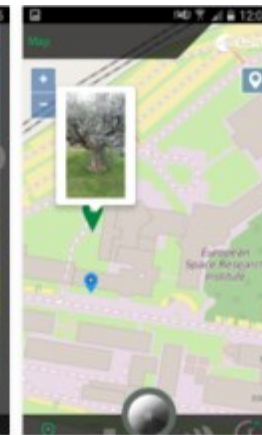
- See where the Sentinel satellites are in real-time
- See the last and next time they have been and will be over your location; Move them to the time of the last data transmission and smoothly move them back to their current location over the 3D globe
- Explore the Sentinel satellite 3D models
- Get information and news about the Copernicus Programme
- Get information about access to Sentinel data
- Set Notifications to be warned when satellites are flying by
- Stay tuned with the latest mission information



Proba-V App



- Take a picture of a landscape
- Associate the vegetation status derived from Proba-V NDVI products in your area to the picture
- See graphics of the vegetation status evolution during the last 6 months (tap on picture icon or on map)
- Build your picture gallery and see all your pictures on the map
- Share the pictures on social media
- Learn about Proba-V, get news and image of the week
- UI available in several languages: English, Italian, Portuguese, Dutch, Spanish, German, etc.



de 11

an Space Agency

Climate from Space, ESA's iPad App for visualization of climate data being produced through the European Space Agency's Climate Change Initiative (CCI)



Allows to visualize temporal changes of:

- sea surface temperature,
- the ice sheets,
- sea level,
- sea ice,
- carbon dioxide,
- soil moisture and many more.



Video courses (University level) about EO



ESA recently started to create educational MOOCs for EO techniques & Applications, starting with Climate Change

What is a MOOC?

- 1. Massive:** no limitation on the number of participants. The record is 440,000!
- 2. Open:** free and accessible for anyone with an Internet connection
- 3. Online:** all activities are made online
- 4. Course:** it has a specific topic, prepared by specialists, offering theoretical and practical content

1st MOOC about “Climate from Space”



- <https://www.futurelearn.com/courses/climate-from-space>
- **10,000+ subscriptions**, 50% active, **completion rate** of 30% (very high!)
- MOOC 5-weeks course (June, 2015 / Dec, 2015) included videos, text, quiz, interactive exercises, satellite tracking app
- **Interactive, with Q&A.** Two editions done, more will follow



Monitoring Climate Change from Space

Explore our planet from Space and learn how we can monitor climate change through Earth observation techniques.

ABOUT THE COURSE

We are now at a time on planet Earth where significant and rapid changes to the climate are taking place. It is becoming increasingly essential for us to study the climate and observe changes all across the planet at the highest level of detail possible. But how can we achieve such a comprehensive worldwide view?

Seeing the Earth from Space allows us to gain such a global perspective. By using Earth observation techniques it is now possible to monitor global environmental change on a scale that has never previously before been possible. Earth observation has not only revolutionised the way we perceive our home, but changed the way we understand our profound impact on the environment. This technology has brought on a transformation in the way we study our planet.

[Go to course](#)

FREE online course

Duration: 5 weeks

3 hours per

EDUCATORS



Ravit Kapur



WEEK 5: MANAGING EO DATA: CURRENT METHODS AND FUTURE CHALLENGES

37 weeks ago



Topic 5a - ESA Climate Change Initiative

How is ESA's Climate Change Initiative (CCI) vital in supporting the monitoring of the Essential Climate Variables (ECVs)?

5.1 TOPIC 5A - ESA CLIMATE CHANGE INITIATIVE VIDEO (08:44)

5.2 TOPIC 5A - EXPLORE THE IMAGERY, DATA & SATELLITES ARTICLE

5.3 ESA CLIMATE CHANGE INITIATIVE QUIZ



Topic 5b - Climate Models and Data Assimilation

The role of EO in accurate climate modeling and data assimilation.

Other ESA MOOCs



Monitoring Climate from Space



Explore our planet from space and learn how Earth observation is used to monitor climate change, with this free online course.

Earth Observation from Space: the Optical View



Discover how optical Earth observation data is gathered and used in this free online course from the European Space Agency (ESA).

- **3rd ESA MOOC on Climate from Space “Greenland special”**

<https://www.futurelearn.com/courses/climate-from-space>

- **1st ESA MOOC on “EO from Space: The Optical View”**

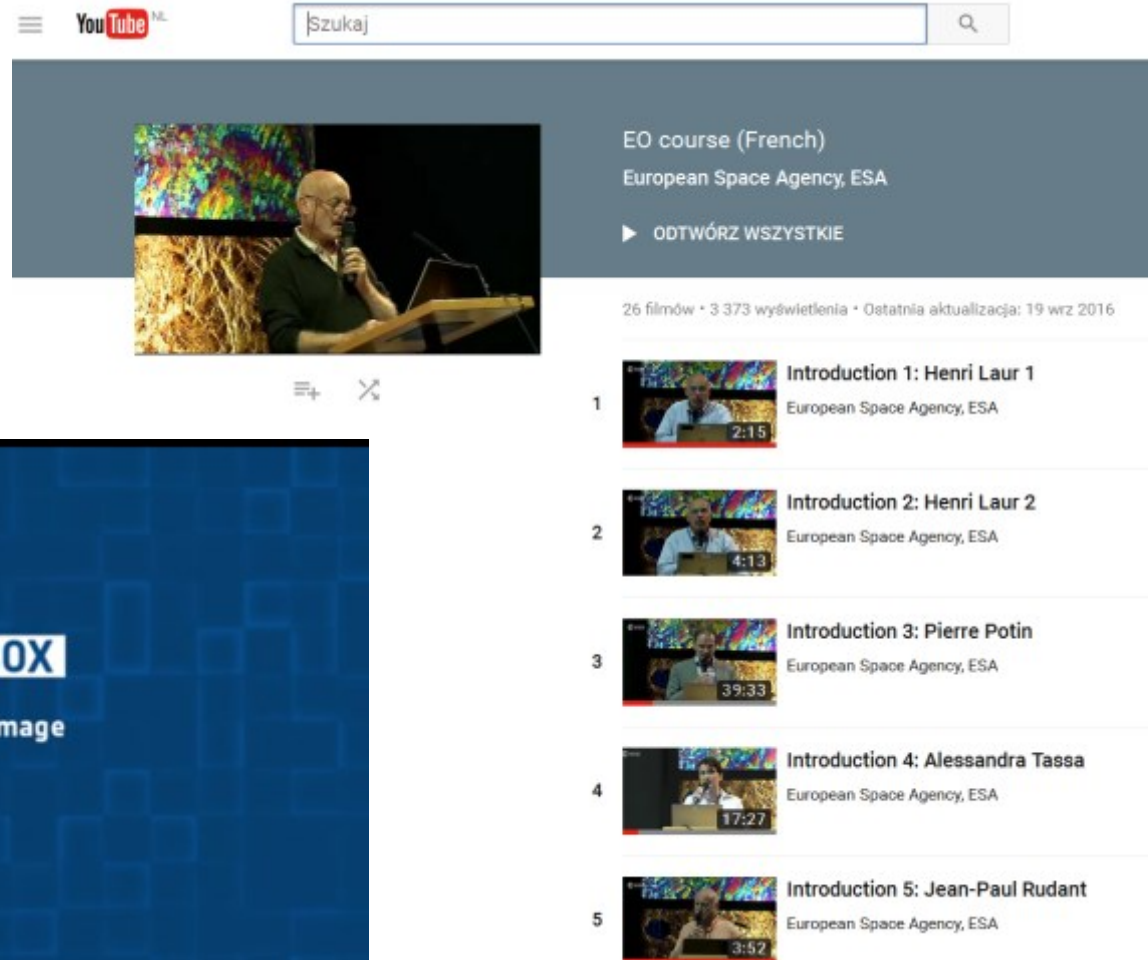
<https://www.futurelearn.com/courses/optical-earth-observation>

- **1st ESA MOOC on “EO from Space: The Radar View”**
Foreseen launch in October 2017

SAR video lectures and SNAP tutorials (French)



1. SAR basic theory and practical exercises with SNAP (French version)
2. Subtitles (Spanish, English) done for free by students, in preparation



European Space Agency

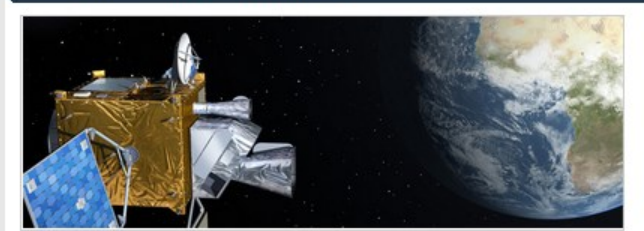
EO Education News

Participate in the ESA LearnEO! competition
23 September 2013
Participate in the ESA LearnEO! lesson-writing competition, bring your work to a world audience and take a chance to win up to 5,000 euros!
Find out more on the [LearnEO! competition webpage](#).

EO Education and Training

EO Education and Training Home
EO Education for Schools
Advanced EO Training for PIs
Other EO Training

EO Education and Training



Overview of Earth Observation Training at ESA
ESA undertakes a wide range of activities in the field of Earth Observation education, training and capacity building. The scope of these activities ranges from high level training in state-of-the-art processing for the next generation of Principal Investigators to more general outreach activities and Earth Observation education for schools.
The aim of this website is to provide a single portal that supplies information about these activities, and enables access to resources produced in their framework.

EO data

- EO data distributed by ESA
- Access data online
- Access GME \$ data
- How to apply for data
- Eoli Catalogue
- ESA Multimedia Gallery

EO training activities

- Education for Schools
- EO Summer Schools
- Dragon Programme
- Tiger Initiative
- Advanced Training
- Other EO Training
- Upcoming / Past Events

EO software

- NEST Training
- LEOVWorks Download (19.5mb)
- Bilko
- ILVVIS

Key Resources

- Sample data
- Auxiliary data
- Catalogue access
- Document Library
- Upcoming Events
- Events Catalogue
- Software Tools
- Online Archives
- EO Software Toolboxes

LearnEO!



LearnEO! is an Earth observation education project funded by ESA. Its aim is to increase the understanding of satellite data from ESA missions and show how these can be used to tackle environmental problems in the real world.

[Read more](#)

Education for Schools



ESA has developed an EO educational website "Eduspace" that mainly targets secondary schools. In addition to this, ESA provides workshops for teachers and has funded the development of many tools for EO education.

[Read more](#)

EO Summer Schools



TIGER Training



Central page for EO education and training


https://earth.esa.int/web/guest/eo-education-and-training

Central page for EO education and training



← https://earth.esa.int/web/guest/training-packages/-/article/sar-land-applications-tutorial ☆ ▼ ↻ ESA sarmap tutorial

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Data Access Missions Earth Topics PI Community Explore more...

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Training Package Details

SAR Land Applications Tutorial

The aim of this tutorial is to introduce beginners to land applications of satellite remote sensing using synthetic aperture radar (SAR). It is intended to give students a basic understanding of SAR technology, the main steps involved in the processing of SAR data, and the type of information that may be obtained from SAR images. The tutorial has three main components:

- [Background and Theory](#) – an overview of the principles behind SAR remote sensing, data processing techniques, examples of land applications, and current and future sources of SAR data
- [The Bilko Exercise](#) - a computer practical using the Bilko software with ENVISAT ASAR data, allowing students to apply the theoretical knowledge to the processing and interpretation of actual SAR data
- [Answers and Examples A](#)
- [Answers and Examples B](#)

Model answers to questions from both parts of the tutorial.

EO Education and Training

- EO Education and Training Home
- EO Education for Schools
- Advanced EO Training for PIs
- Other EO Training

Earth Online Resources

EO Data Access

- EO data distributed by ESA
- Access data online
- Access Copernicus data
- How to apply for data

Resources

- Sample data
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- Catalogue access
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- Upcoming Events
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- Software Tools
- Online Archives

EO Software

- EO Software Toolboxes

Services

- Credits

https://earth.esa.int/web/guest/training-packages/-/article/sar-land-applications-tutorial

Space Agency

Central page for EO education and training



Earth Online

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European Space Agency

Data Access ▾

Missions ▾

Earth Topics ▾

PI Community ▾

Explore more... ▾

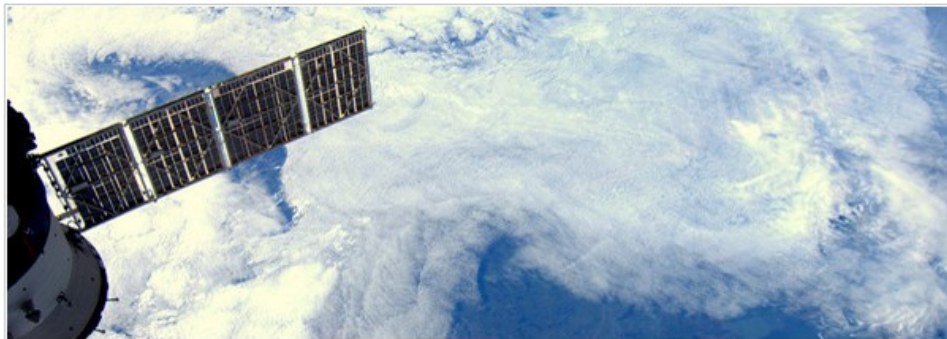
You are here [Home](#) > [EO Education and Training](#) > [Other EO Training](#)

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Other EO Training



In addition to the programmes listed in the Overview page, ESA organises other EO training events on an ad hoc basis, and produces EO training material at various levels.

Below is a list of each training package listed in chronological order (to access the material for each package, click on the links provided in the list):

Training Packages

7th ESA Training Course on Radar Remote Sensing (30 May - 4 Jun 2016)

Training course on the theory and applications of spaceborne Synthetic Aperture Radar (SAR). The course is held in Sofia, Bulgaria.

[Read more](#)

EO Education and Training

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[Advanced EO Training for PIs](#)

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EO Data

[EO data distributed by ESA](#)

[Online Archives](#)

[Catalogue access](#)

[Sample data](#)

[Sentinel-1 Data Hub](#)

[Eoli Catalogue](#)

[ESA Multimedia Gallery](#)

EO Training Activities

[Education for Schools](#)

[EO Summer Schools](#)

[Dragon Programme](#)

[Tiger Initiative](#)

[Advanced Training](#)

[Other EO Training](#)

<https://earth.esa.int/web/guest/eo-education-and-training/university-undergraduate-level>

European Space Agency

Central page for EO education and training



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EO Education for Schools

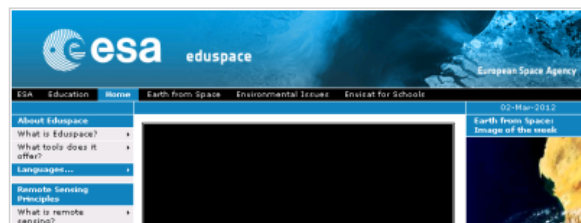


EO Education for Schools

ESA undertakes educational projects aimed at bringing Earth Observation into the school curriculum. ESA has developed the Earth Observation educational website, "Eduspace". Other activities include organising and contributing to workshops for teachers, and developing tools (such as atlases and CDs) for EO education.

Eduspace

ESA has produced and maintains the Earth Observation website for secondary schools, Eduspace. This website contains a wealth of knowledge about remote sensing, image processing, satellites, instruments and applications of Earth Observation. As well as being a source of information, the website is interactive and contains many exercises and case studies designed to be used with software and data that can be downloaded freely from the site. Eduspace is targeted mainly to secondary schools, but can be useful to anyone new to Earth Observation.



EO Education and Training

[EO Education and Training Home](#)
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[Advanced EO Training for PIs](#)
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- Upcoming / Past Events

EO software

European Space Agency

Central page for EO education and training



The screenshot shows the ESA Earth Online website. The header includes the ESA logo, 'Earth Online', and navigation links like 'Data Access', 'Missions', 'Earth Topics', and 'PI Community'. The main content area is titled 'EO Education and Training' and contains several paragraphs of text about the ESA School Atlas, its educational value, and where to find more resources. A sidebar on the right lists 'EO data' and 'EO training activities'.

esa Earth Online

Need Help? [Contact here](#) European Space Agency

[Data Access](#) [Missions](#) [Earth Topics](#) [PI Community](#) [Explore more...](#)

You are here [Home](#) > [EO Education and Training](#) > [EO Education for Schools](#)

ESA School Atlas

ESA and Geospace launched an educational resource in the form of the ESA School Atlas. As a complement to the more conventional atlas, this represents an evolutionary leap in teaching resources, using satellite data to show the Earth as it really is.

The Atlas is built on satellite imagery and is packed with the most current and visually stunning results of Earth Observation. It displays in a clear and novel way all the fundamental processes affecting the Earth system, and demonstrates the techniques of the future for monitoring and understanding our planet.

This Educational resource is an invaluable tool for the classroom, finally providing a very affordable exposure to costly satellite imagery from a wide variety of sensors. Wide swath imagery providing continental and global overview is included, together with satellite imagery of the highest spatial resolution available today, with images of 0.6m resolution.

The production of the School Atlas was funded by ESA's Earth Observation programme specifically to convert this kind of Earth Observation material into an educational resource affordable to schools, and the atlas is available at a much reduced cost!

Earth Observation exploits our understanding of physics and computer science to observe a great many features and processes taking place on the Earth's surface and atmosphere. Some examples include the monitoring of plants, oceans, atmospheric gas concentrations, geological features and changing cities. As such, while the methods of Earth Observation are primarily relevant to the study of physics and computer science, the applications are significant to an extremely wide variety of disciplines, including among others: geography, biology, chemistry, environmental sciences, art and history.

The ESA School Atlas kit is a very valuable resource also for students of Geographic Information Systems (GIS). There are many ready made digital exercises on DVDs provided with the Atlas that can be used with the free software packages LEOWorks and ArcExplorer.

The Atlas is accompanied by a Teacher's Handbook and a digital version on two DVDs. It is available in both English and German.

Alternatively, select the links below to download freely the DVDs and Teacher's Handbook:

- [ESA School Atlas DVD 1](#) (4.69 Gb)
- [ESA School Atlas DVD 2](#) (3.20 Gb)
- [Teacher's Handbook](#) (English)
- [Teacher's Handbook](#) (German)

The Atlas contains the following content:

EO Education and Training

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EO data

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- [Upcoming / Past Events](#)

EO software



LearnEO!

Learn Earth Observation with ESA

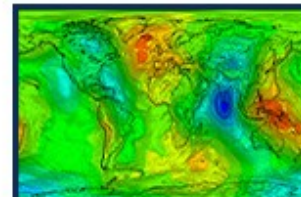
[Home](#) [Lesson competition](#) [About](#) [Data sets](#) [Lessons](#) [Software](#) [Resource library](#) [Information for authors](#) [Register](#)

Hands-on activities with Bilko



A holistic framework for EO education

- Lessons on different EO applications.
- Over 200 data sets with description.
- New powerful version of the Bilko software
- Resource library with extra information and tools.
- Support for lesson writers and lesson users



Ocean rifts & tectonic plates

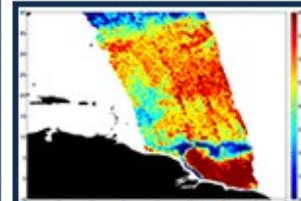
Lesson Writing Competition



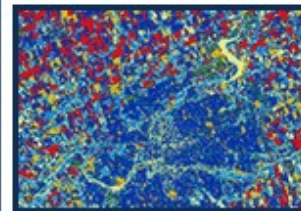
Do you care about EO education?
Do you want to share your expertise?
Do you have examples of how EO data can make a difference?

Prizes: €5000, €3000, €2000

Open to anyone over 18 anywhere in the world
See our [competition pages](#) to learn more



The Amazon river plume



Land cover mapping

Platforms and missions



National Oceanography Centre
NATURAL ENVIRONMENT RESEARCH COUNCIL

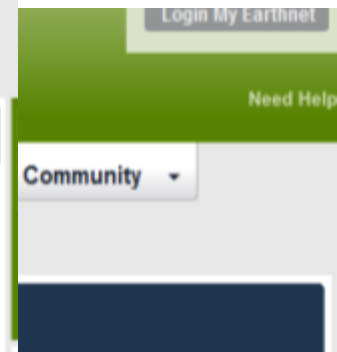


Training courses at University level in Europe: ECS (Capacity Building in Earth Observation)



Series of Radar Training Courses in ECS countries since 2008 (University level): first for Radar Remote Sensing, now extended to the Sentinels

Czech Republic (2008), Romania (2009), Poland (2010), Hungary (2011), Estonia (2012), Cyprus (2013), Malta (2014), Slovenia (2015), Bulgaria (May 2016) and Latvia (Sept 2016), **Lithuania (July 2017)**



ESA/CSO Radar Remote Sensing Course
27-31 October 2008

Training courses at University level in Europe: Innovative Training for Next generation EO Scientists, in MS



Training courses at University level in Europe: Earth Observation Summer Schools in ESRIN



→ **EARTH OBSERVATION
SUMMER SCHOOL**

Earth System Monitoring & Modelling



1-12 August 2016 | ESA-ESRIN | Frascati (Rome), Italy

**1-12 August 2016 Summer School
ESRIN**

**70 early career scientists
have taken part.**

**Usually organized every 2 years,
open to students from worldwide,
free tuition**



Topics :

**Global Observing Systems, Earth
System Modelling, Data
Assimilation, Global Change**

ESA UNCLASSIFIED – Releasable to the Public



Training courses at University level in Europe: EARSeL



Long-term cooperation in organising joint Workshops for teachers / young researchers with EARSeL (European Association of Remote Sensing Laboratories)



European Association of Remote Sensing Laboratories

Special Interest Group

Remote Sensing in Education and Training

10 - 13 July 2017
Museum of the World Ocean, Kaliningrad, Russia
54°44'N 20°29'E

3rd Student Workshop on Ecology and Optics of Coastal Zones

A Summer School jointly organised by:

- EARSeL's Special Interest Group Education & Training
- Faculty of Physics, Lomonosov Moscow State University, Russia
- Immanuel Kant Baltic Federal University, Kaliningrad, Russia
- Institute of Physics, University of Oldenburg, Germany
- Museum of the World Ocean, Kaliningrad, Russia
- The Atlantic Branch of P.P. Shirshov Institute of Oceanology, Kaliningrad, Russia

to be held in the premises of the [Museum of the World Ocean](#) in Kaliningrad, Russia, on 10-13 July 2017.

New: Lecturer Meeting on 13 July, 14-17h
Lecturers and other interested participants will meet on 13 July afternoon for a strategy meeting. Focus will be on the creation of new educational material for different school and university levels in natural sciences, mathematics and engineering, and for authorities responsible for monitoring and surveillance of the marine environment. The outcome shall be a bundle of project ideas, to be elaborated by partner consortia, and submitted to national and European funding agencies.



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Call for Papers

Important Dates

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2nd Workshop 2016

1st Workshop 2014

SIG Homepage



Recent EARSeL Workshop and Trainings: Bonn (June 2016), Beijing (July 2016) and Frascati(Rome)/ESRIN on RS for Archaeology (November 2015)

Upcoming event: 3rd Student Workshop on Ecology and Optics of the Coastal Zones (10-13 July 2017, Kaliningrad, Russia)

Training courses at University level in Europe: cooperation with other space agencies (DLR, NASA)



Examples: Cooperation with NASA (Trans-Atlantic Training on LULC in Baltic Countries and Eastern Europe). Forthcoming TAT training event in Hungary, June 2017.

See TAT <http://web.natur.cuni.cz/gis/tat/>
LCLUC workshop http://www.nyme.hu/lcluc_training.html?&L=4
<https://web.natur.cuni.cz/gis/lucc/>



Cooperation with CEOS WGCapD

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Our Work

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WGCapD

The Working Group on Capacity Building and Data Democracy

The WGCapD (formed at the 25th CEOS Plenary in 2011) undertakes a variety of activities based on the four pillars of the Data Democracy Initiative Mission and aims to unify CEOS efforts toward:

- Providing wider and easier access to Earth Observation data
- Increasing the sharing of software tools such as the use of open source software and open systems interface
- Increasing data dissemination capabilities and transferring relevant technologies to end users
- Providing intensive capacity building, education, and training (including awareness and outreach) for enabling end users to gather the information they need and for increasing communication on achieved results



The WGCapD-6 Group Photo in Oberpfaffenhofen, Germany (2017)

Training courses online - centralized web page



The content of most training courses can be linked from the central web page for ESA EO Education and Training:

<https://earth.esa.int/web/guest/eo-education-and-training>

A screenshot of the ESA Earthnet Online website. The page has a green header with the ESA logo and 'Earthnet Online' text. Navigation menus include 'Data Access', 'Missions', 'Earth Topics', 'PI Community', and 'Explore more...'. The main content area is divided into several sections: 'EO Education News' with a competition announcement, 'EO Education and Training' with a satellite image, 'EO data' with a list of links, and 'EO training activities' with a list of programs. The page is flanked by two large, abstract, textured images in shades of brown and blue.

esa Earthnet Online

Need Help? Contact here European Space Agency

Data Access Missions Earth Topics PI Community Explore more...

You are here Home » EO Education and Training

EO Education News

Participate in the ESA LearnEO! competition
23 September 2013
Participate in the ESA LearnEO! lesson-writing competition, bring your work to a world audience and take a chance to win up to 5,000 euros!
Find out more on the [LearnEO! competition webpage](#).

EO Education and Training

EO Education and Training

EO Education and Training Home
EO Education for Schools
Advanced EO Training for PIs
Other EO Training

EO data

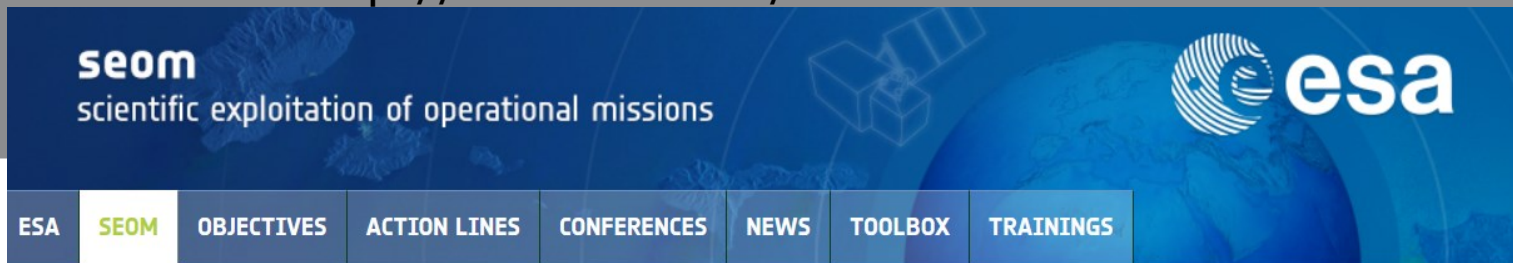
- EO data distributed by ESA
- Access data online
- Access GMES data
- How to apply for data
- EO Catalogue
- ESA Multimedia Gallery

EO training activities

- Education for Schools
- EO Summer Schools
- Dragon Programme
- Tiger Initiative
- Advanced Training
- Other EO Training
- Upcoming / Past Events

Overview of Earth Observation Training at ESA

ESA undertakes a wide range of activities in the field of Earth Observation education, training and capacity building. The scope of these activities ranges from high level training in state-of-the-art processing for the next generation of Principal Investigators to more general outreach activities and Earth Observation education for schools.



ESA EO

COPERNICUS

SENTINEL

NEW OPPORTUNITIES

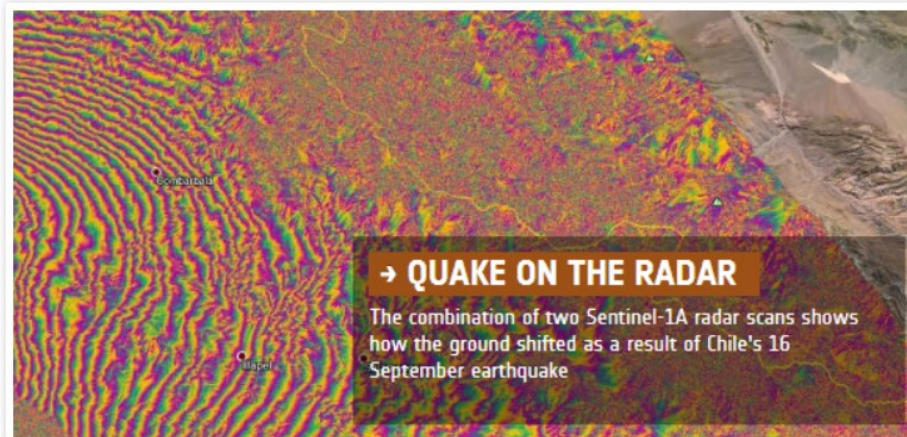
Invitations to Tender

PARTNERS

PROJECTS

CONTACTS

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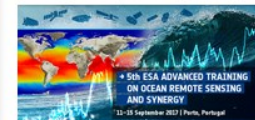
Archive



seom
scientific exploitation of operational missions



EO OPEN SCIENCE



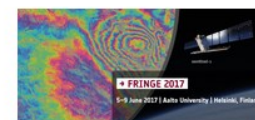
Ocean Training Course 2017



Land Training Course 2017

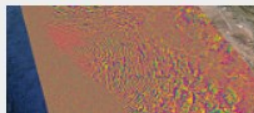


EO Science for Society



SEOM STUDIES RESULTS

Chile earthquake on the Radar



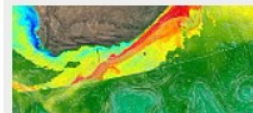
©INSARAP study PPO.labs/NORUT

S1 Toolbox Mosaic of Estonia



©Copernicus data/ESA (2015)

Ocean Virtual Laboratory



©OceanDataLab

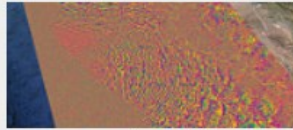
Launch of EO Open Science 2.0

SENTINEL-2 for Science

Shaping next-generation

SEOM STUDIES RESULTS

Chile earthquake on the Radar



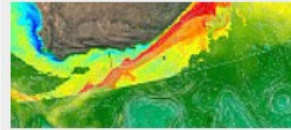
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S1 Toolbox Mosaic of Estonia



©Copernicus data/ESA (2015)

Ocean Virtual Laboratory



©OceanDataLab

Launch of EO Open Science 2.0



SENTINEL-2 for Science Workshop



Shaping next-generation scientists



The SEOM (Scientific Exploitation of Operational Missions) element:

The prime objective of the SEOM element of the Earth Observation Envelope Program 4 is to federate, support and expand the large international research community that the ERS, ENVISAT and the Envelope programmes have build up over the last 20 years. It aims to further strengthen the international leadership of European Earth Observation research community by enabling them to extensively exploit observations from future European operational EO missions. SEOM will enable the science community to address many new avenues of scientific research that will be opened by free and open access to data from operational EO missions.



EO Science for Society



FRINGE 2017



Polinsar 2017



Polarimetry Course 2017



ESA EO summer school



EO OPEN SCIENCE 2016

Thanks for your attention!!!



Web sites of interest for EO Education:

Copernicus: <http://copernicus.eu/>

ESA Earth Watching: <http://ew.eo.esa.int/web/guest/home>

ESA Education: <http://www.esa.int/Education>

SEOM: <http://seom.esa.int/>

ESA Earth Observation:

[http://www.esa.int/Our Activities/Observing the Earth](http://www.esa.int/Our_Activities/Observing_the_Earth)

ESA Earth Observation Education: <https://earth.esa.int/web/guest/eo-education-and-training>

Eduspace: [http://www.esa.int/SPECIALS/Eduspace EN/](http://www.esa.int/SPECIALS/Eduspace_EN/)

International Charter: www.disasterscharter.org