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An overview of Earth Observation (EO) programmes of the European Space Agency (ESA) for applications in disaster monitoring, global change and the preservation of world heritage sites (invited)

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Through its EO Programme, ESA undertakes a wide variety of projects in a number of different application areas of EO, including, amongst others, disaster monitoring, observation of global change and the preservation of World Heritage Sites.
In 1999, ESA and the French Space Agency CNES initiated the International Charter "Space and Major Disasters". To date, many other space agencies have joined the International Charter, which aims to provide a unified system of space data acquisition and delivery to those affected by natural or man-made disasters worldwide.
The European Earth monitoring programme GMES (Global Monitoring for Environment and Security) provides users (mainly policymakers and public authorities) with information through services dedicated to a systematic monitoring and forecasting of the state of the Earth's subsystems. GMES collects data from multiple sources (earth observation satellites and in situ sensors such as ground stations, airborne and sea-borne sensors), processes these data and provides users with reliable and up-to-date information through services.Six thematic areas are developed: marine, land, atmosphere, emergency, security and climate change.The pre-operational GMES emergency management service, SAFER, reinforces the European capacity to respond to emergency situations such as fires, floods, earthquakes, volcanic eruptions, landslides or humanitarian crisis. The land, marine and atmosphere monitoring services contribute directly to the monitoring of climate change and to the assessment of mitigation and adaptation policies.
ESA's Global Monitoring of Essential Climate Variables, known as the ESA Climate Change Initiative (CCI),will provide an adequate, comprehensive, and timely response to the extremely challenging set of requirements for highly stable, long-term satellite-based products for climate, that have been addressed to Space Agencies via the Global Climate Observing System (GCOS) and the Committee on Earth Observation Satellites (CEOS). It is exclusively concerned with addressing the explicit needs of the UNFCCC.
ESA contributes to the preservation of World Heritage Sites through the 'Open Initiative' on the Use of Space Technologies to Support the World Heritage Convention, an agreement signed by ESA and UNESCO in 2003. It aims to develop a framework of co-operation, open to space agencies, research institutions, non-governmental organisations and the private sector in order to assist developing countries, through space technologies, to improve their natural and cultural conservation activities.
In order to sustain the momentum of EO initiatives, and stimulate growth and innovation in all EO applications, ESA recognises the importance of education, training and capacity building.Many activities ranging from high level training in state-of-the-art processing for the next generation of Principal Investigators (PIs) to more general outreach activities and EO education for schools is undertaken by ESA. During the8th EGU Alexander von Humboldt International Conference a 2 day training will be held in the framework of EGU GIFT (Geosciences Information for Teachers) during which practical sessions on the use of EO techniques for the monitoring of natural disasters, global change, and the preservation of world heritage sites will be provided, using educational tools developed by ESA.