

## **TEIN2 Network Applications**

### **Typhoon warning systems**

About 20 typhoons hit the Philippine archipelago every year triggering flash floods and landslides, leaving behind a trail of devastation. Effective disaster warning systems rely on accurate storm forecasts and fast communication of weather alerts. The Philippine National Meteorological Agency, PAGASA, now uses a combination of internet networks and SMS messages, to provide real time alerts to emergency coordination centres and the general public.

PAGASA utilises TEIN2 and the Philippine national network (PREGINET) to connect to partners in Europe. Working with data from Germany's Deutsche Wetterdienst (DWD), PAGASA runs daily forecasting models. Results are ready in just one hour for the formulation of seventy-two hour forecasts.

These fast and timely warnings prepare citizens and the emergency services, and help mitigate the disastrous effects of typhoons. Filipinos can also obtain this vital information via an SMS text message. TEIN2's high bandwidth capacity means reduced delays for the transmission of meteorological data from Germany to the Philippines. Ultimately, this groundbreaking international research collaboration will help save lives in the Philippines.

More at:

[www.pagasa.dost.gov.ph](http://www.pagasa.dost.gov.ph)

[www.dwd.de](http://www.dwd.de)

[www.asti.dost.gov.ph](http://www.asti.dost.gov.ph)

### **Medical training and e-Learning**

Advances in keyhole surgery techniques have vastly improved patient healthcare. With small incisions, patients experience less scarring, faster recovery and reduced costs for hospital stays than with conventional surgery. TEIN2 aids medical education in minimally invasive surgery between trainees and experienced surgeons, creating virtual teaching communities throughout the region.

TEIN2's fast and stable network connections support the digital video transport system (DVTS), streaming live, high-definition surgeries from an operating theatre to remote classrooms, with real time interaction. TEIN2 is extending medical training throughout Asia-Pacific. Pioneers in tele-surgical training including Japan's Professor Shuji Shimizu, as well as colleagues in Korea, Singapore and Australia, are now mentoring partners in Vietnam, Indonesia and Malaysia.

TEIN2's interconnection to GÉANT2 enables interaction with European medical teams, like the European Institute for Tele-surgical Training, based in Strasbourg. TEIN2 and GÉANT2 will contribute to the creation of a virtual international teaching community to disseminate best medical practice and to improve standards of healthcare across the two continents.

More at: <http://www.aqua.med.kyushu-u.ac.jp/>



## **Tsunami warning and crisis support**

Tsunamis are not predictable, but their disastrous impacts can be mitigated with timely warnings. The main goal of a German-Indonesian initiative is to establish an advanced Tsunami early-warning system for the Indian Ocean, focusing on the highly vulnerable Indonesian coastline. It will bring together cutting-edge technologies consisting of seismometers, GPS, marine buoys, tide gauges and advanced IT-technologies. Sensor data is transmitted online to the national centre in Jakarta for processing and modelling. Within 10-15 minutes, predictions are available and ready to be sent to warning centres in all Indian Ocean rim countries, as well as to local centres in Indonesia.

TEIN2 will contribute to the establishment of this system by complementing satellite links for the transmission of sensor and modelling data. With improved regional network connectivity, TEIN2 assists Indonesian research institutes like the University of Bandung, optimising their own tsunami-modelling activities.

TEIN2 has an important role in post-disaster crisis support. Its high capacities and extensive reach make it ideal for the transfer of high-resolution satellite imagery of affected areas. TEIN2's links to Europe allow images processed in Europe (for example at the German Aerospace Centre) to be quickly transferred to government authorities in Jakarta.

More at: [www.gitews.org](http://www.gitews.org)