



Case Study

Emergency Response

Earthquake Damage Assessment with Pakistan Space Agency

Challenge

On October 26th 2015, Pakistan experienced a 7.5 magnitude earthquake whose epicentre was located below the Hindu Kush Range, in Afghanistan. Even though the 2015 earthquake was less devastating for Pakistan than the one 10 years ago, it still caused 300 fatalities and 1800 people were injured in the affected areas. Pakistan National Space Agency, SUPARCO, plays a crucial role in the region regarding application of space based information for disaster monitoring. It also acts as a Regional Support Office of the United Nations Platform for Space Based Information for Disaster Management and Emergency Response (UN-SPIDER).

Considering the urgency of the situation, the Pakistan National Space Agency, SUPARCO, was requested to provide damage assessment maps of the affected areas for federal and provincial disaster management agencies and other concerned organisations. First responders in the field would use them to make informed decisions and save lives during the relief and rescue operations.

SUPARCO needed fresh satellite imagery in the shortest timeframe to rapidly produce these maps. The Agency has been equipped with an Airbus Defence and Space Direct Receiving Station from the early 1990s, which supports fast delivery of ordered satellite imagery. Its Space Application Centre for Response in Emergency and Disasters (SACRED) needed Very High Resolution imagery as soon as possible to efficiently respond to the demand.



"SUPARCO teams are very grateful to deal with Airbus Defence and Space not only as a data provider but above all as a dedicated partner."

Imran Iqbal,
Member (SAR), SUPARCO

Solution & Results

The extremely agile and responsive Pléiades satellites were tasked and trusted by SUPARCO to endorse this mission. Indeed, shortly after the earthquake, their team placed five Instant Tasking emergency requests on October 26th at 8.45pm through the online portal, GeoStore.

Thanks to the flexibility and the availability of Pléiades, the images were acquired the very following morning. Due to a fully automatic

process, it took only 2,5h from image acquisition to final delivery, a close to near real time performance! Indeed, the faster imagery was delivered, the quicker the mapping response and the more efficient the disaster management on field.

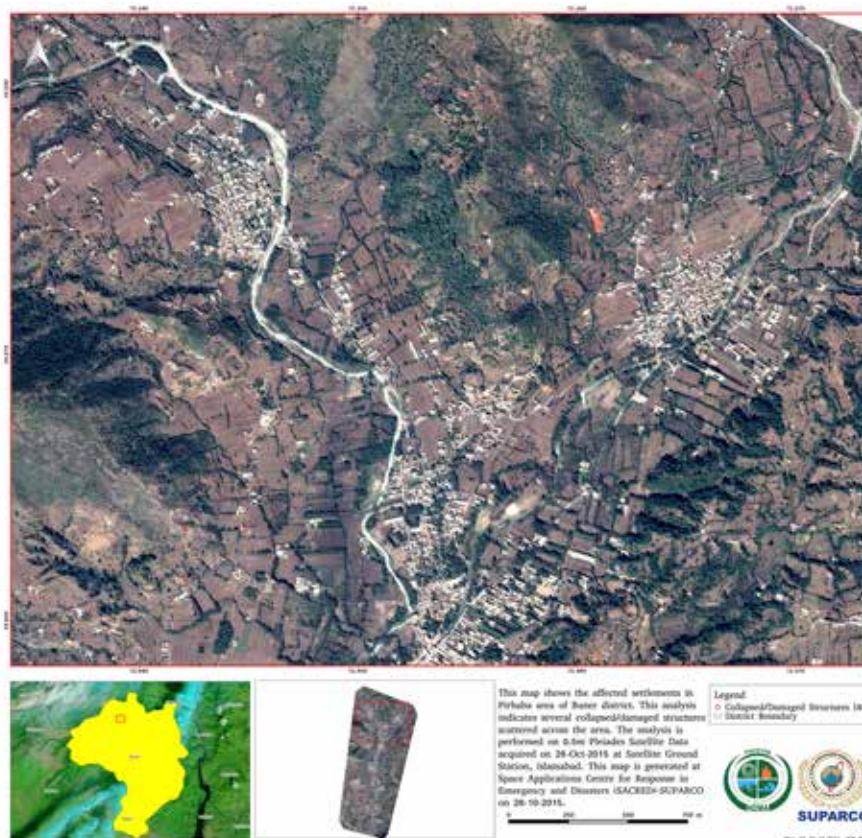
The SUPARCO teams also demonstrated their high responsiveness: on October 28th, four Rapid Damage Assessment maps were

produced using the 50cm Pléiades products, showing various affected areas of Khyber Pakhtoonkhwa Province.

These value-added documents were then made available to all concerned disaster management agencies. The operational teams used the latest information derived from their maps to efficiently manage relief and rescue operations and start an early recovery phase.

Benefits

- Rapid availability of the damage assessment map provided by SUPARCO thanks to Pléiades constellation guaranteed acquisitions and high responsiveness.
- Efficient management of ground operations by field teams thanks to reliable and highly detailed damage maps.
- Proven operational effectiveness of SUPARCO teams thanks to a customer & data-provider trust and collaborative relationship.



Afganistan Earthquake 2015: Rapid Damage Assessment Map, Pirsaba, Buner Kp

- Challenge** Fresh satellite imagery in the shortest timeframe to rapidly produce damage assessment maps of the affected areas.
- Solution & Results** Five Instant Tasking emergency requests were placed and Pléiades images were delivered in only 2,5h after acquisition. Four rapid Damage Assessment Maps were then produced in a very short timeframe.
- Benefits** Exceptional responsiveness in map production thanks to Pléiades constellation agility, and efficient management of ground operations due to reliable damage maps.

Solution Description

Instant Tasking is a 24/7 web service that enables users to request and get a new satellite image directly from their laptop, in full autonomy, in just a few hours. The customer's request is transmitted directly to the satellite with a maximum priority level. The image is acquired, produced and delivered as quickly as possible. This service is available with Pléiades and SPOT 6/7.

Organisation Involved



Pakistan Space and Upper Atmosphere Research Commission (SUPARCO), the National Space Agency, is mandated to conduct R&D in space science and space technology. It works towards developing indigenous capabilities in space technology and promoting space applications for socio-economic uplift of the country.