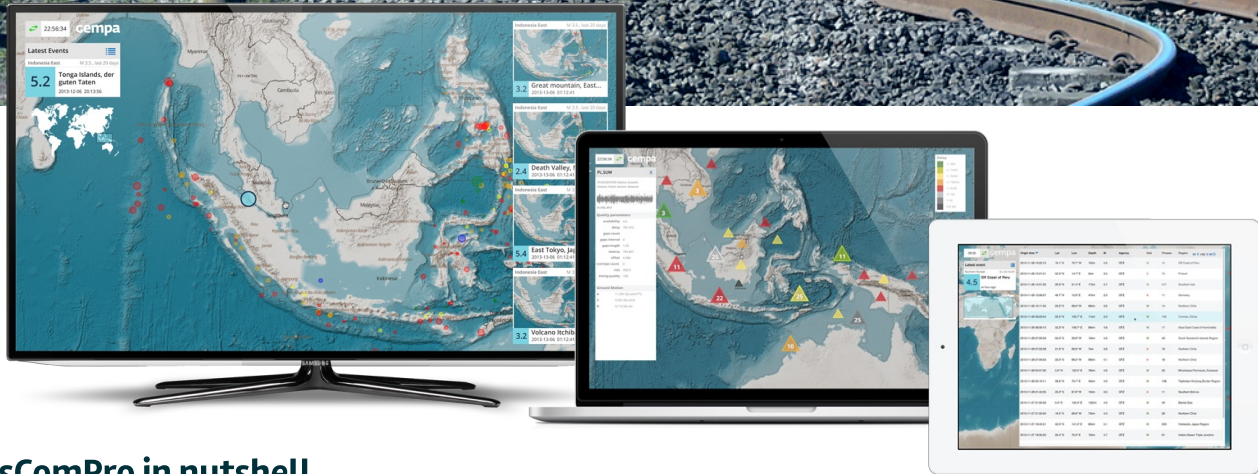## SeisComPro
Earthquake monitoring

SeisComPro: software extentions and webapplications for SeisComP3

SeisComPro in nutshell

SeisComPro is gempa's extension to SeisComP3 fulfilling the requirements for enhanced multi-sensor data acquisition and earthquake analysis as well as industrial monitoring of microseismicity.

The SeisComPro utilities are especially designed and suited for monitoring of high-rate seismicity at a wide range of magnitudes during earthquake swarms, volcanoe activity, geothermal energy production or extraction of crude oil or natural gas.

- **CAPS** is a redundant multi-format data acquisition system supporting almost any format
- **scanloc** clusters and associates phase picks ensuring that earthquake monitoring in high-rate seismicity areas delivers reliable hypocentres
- **sceval** verfies earthquake detections and safely detects and declares false events
- **GAPS** provides WebApps for Web-based earthquake analysis from anywhere - just as at home.

CAPS
**Redudant multi format data acquisition**
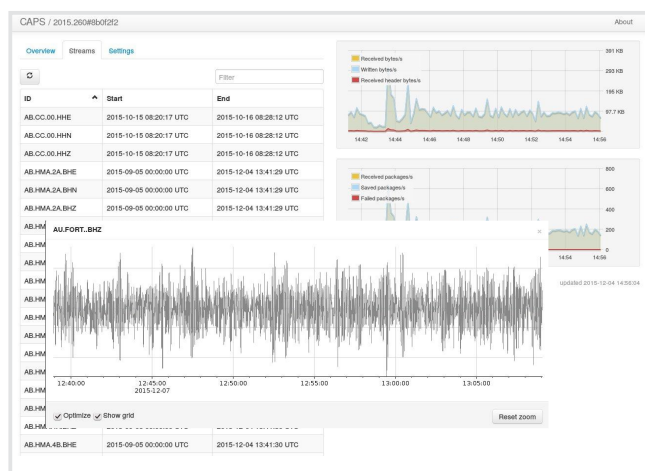
The **Common Acquisition Protocol Server** (CAPS) transfers multi-sensor data in almost any format from a station to the data center. It is particularly suited to connect co-located sensors like seismometers, accelerometers, CGPS, thermometers, video cameras, etc. CAPS handles low- and high-sampled data and provides a Web-control:

- multi-sensor data transfer, fine-grained control
- lightweight protocol for minimized overhead
- one protocol and one connection for all data
- reliable data transfer and backfillig of data
- secure communication via SSL
- Web-based control

GAPS / WebApps
Web based earthquake analysis
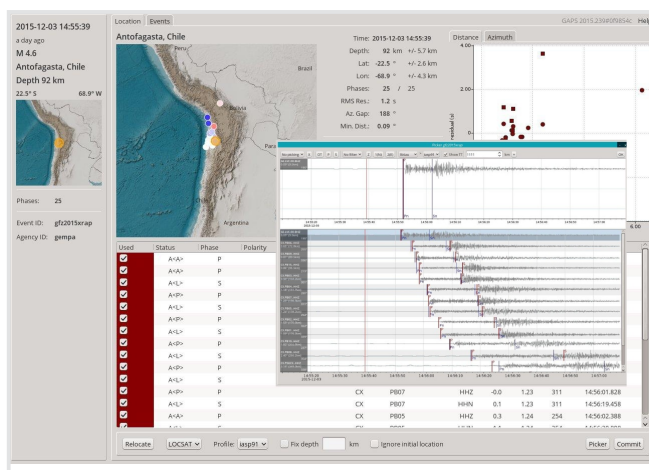
GAPS is gempa's interactive Web module. Perfectly complementing a locally installed SeisComP3, GAP provides remote access to earthquake and sensor information and interactive processing from anywhere through a web browser. GAP simplifies the fast supply of information to stakeholders and to the public. GAP's 4 Web apps provide access to:
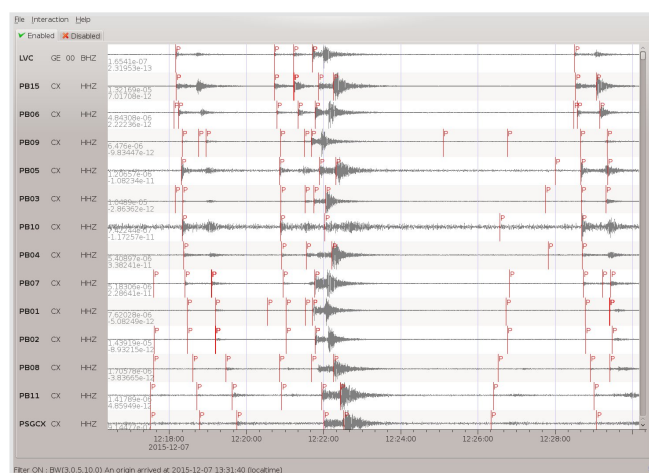• earthquake activity in customized source regions and magnitudes (**EQView**)
• network state and activity (**StationView**)
• real-time seismogram plots (**TraceView**)
• interactive seismic analysis (**OriginLocatorView**).
Visit gempa 's: **http://quakelink.gempa.de**.

scanloc
### Detection clustering and association

scanloc is a clustering and association tool to detect and to locate local to regional earthquakes using the cluster search algorithm DBSCAN. The cluster search in scanloc is able to identify phase picks from a cloud of possible picks and to associating them to earthquakes. It also associates additionally incoming P- and S-phases to already existing internal or external hypocentre solutions.
In high-seismcity areas scanloc ensures reliablity of earthquake hypocentres at a wide range of magnitudes.
scanloc is just perfect for monitoring geothermal sites or carbonhydrate production.

sceval
Realtime event evaluation
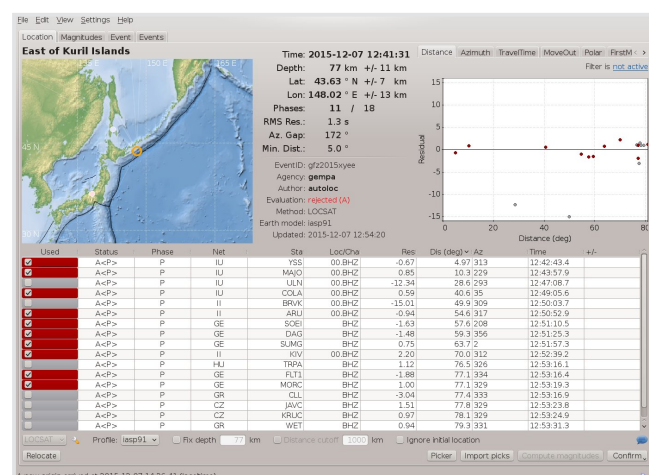
sceval evaluates origin received from the SeisComP3 messaging system. Due to noisy data or unfavourable coincidences of automatic detections of seismic phases from different earthquakes or or picks at wrong times earthquake locations may be unreasonable or even fake events. Such outliers are tagged as rejected by sceval and prevented from being mistaken as a real earthquake. In this way, operators and stakeholders are provided with the correct information on earthquakes avoiding unnecessary work load or excitation.