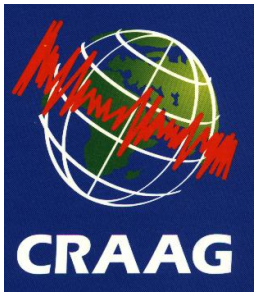


Centre de Recherche en Astronomie Astrophysique et Géophysique

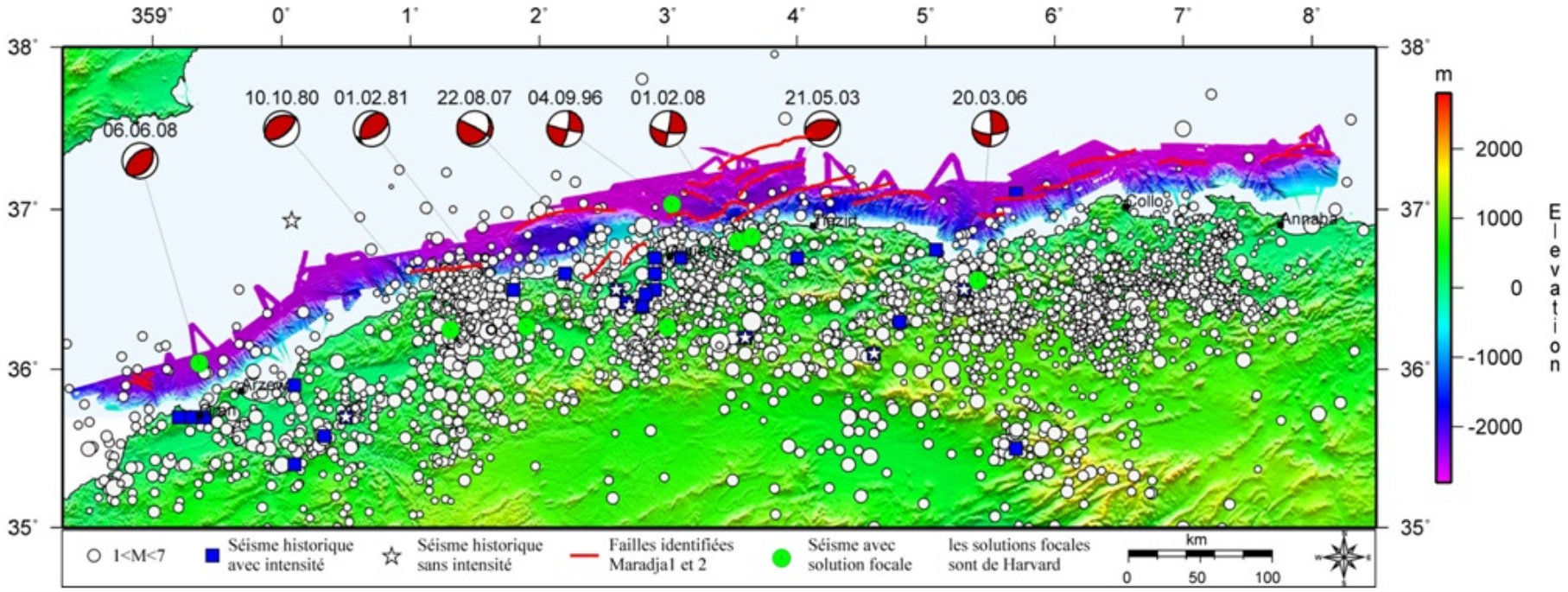
CRAAG

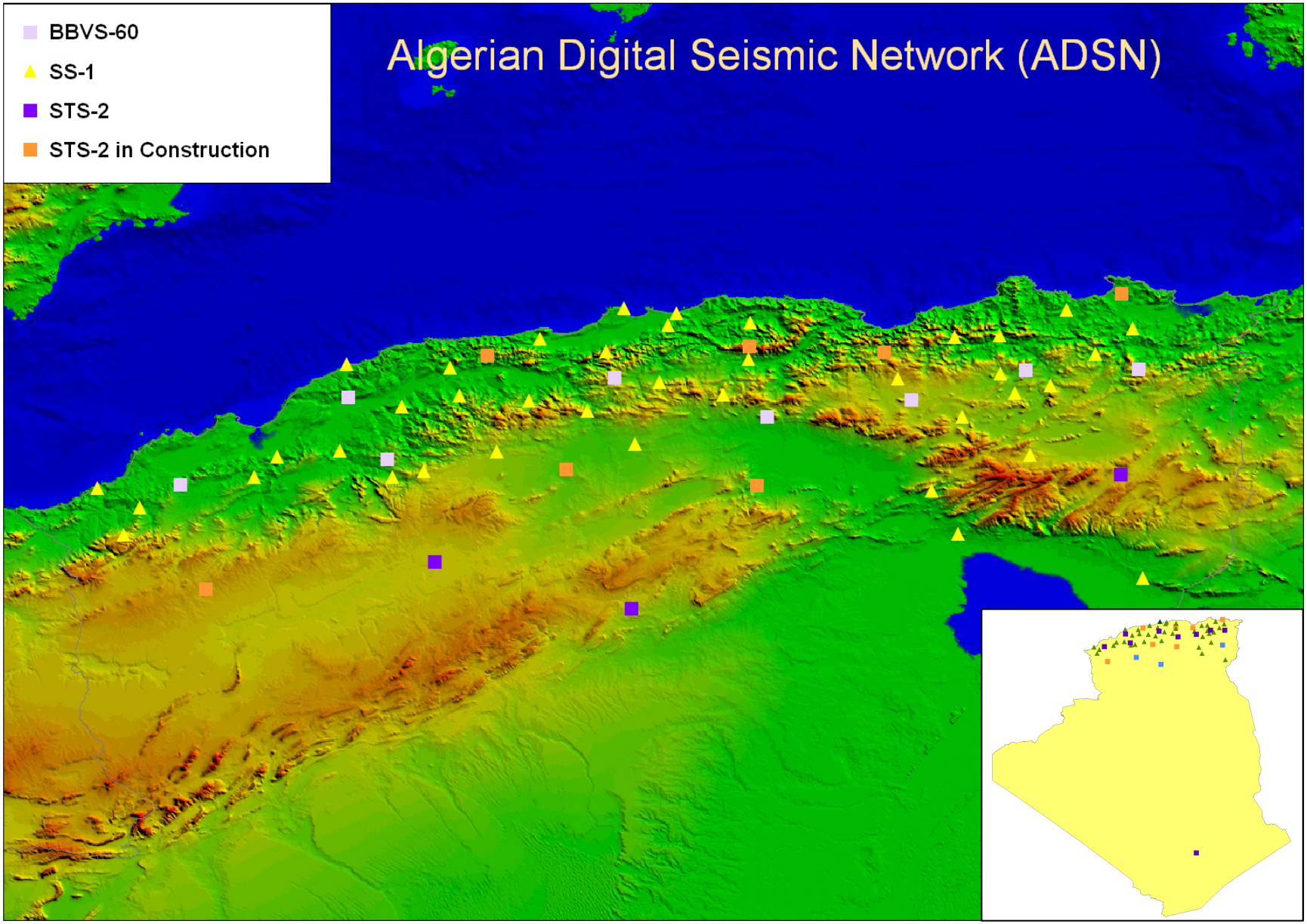
The New Algerian Digital Seismic Network

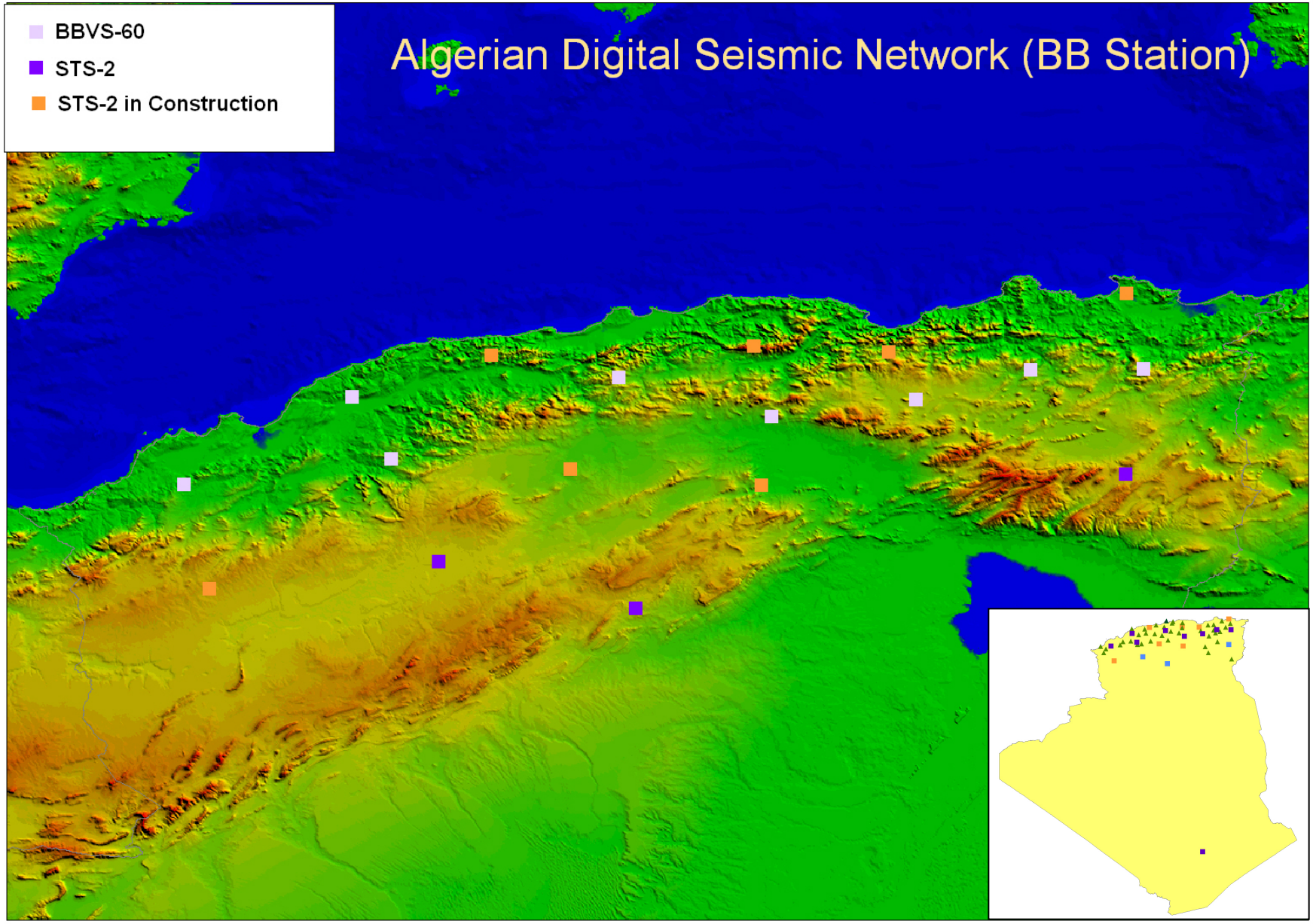
State and future development

T.ALLILI, A.KHERROUBI
CRAAG

Seismicity of Algeria (1365 – June 2008) from Algerian catalog




BBVS-60
SS-1
STS-2
STS-2 in Construction
Algerian Digital Seismic Network (ADSN)


BBVS-60
STS-2
STS-2 in Construction
Algerian Digital Seismic Network (BB Station)

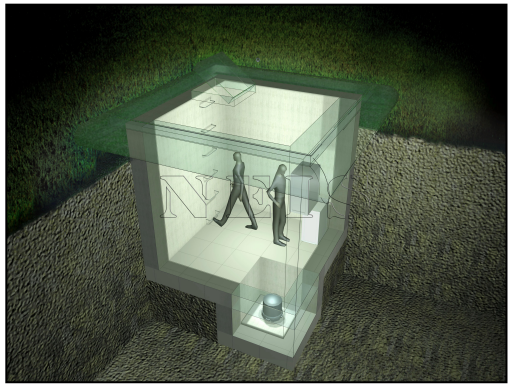
- **(08) BB stations and (02) VBB stations**
  - Sensor BBVS-60 and BBVS-120
  - Digitizer EDAS-24IP 6 channels

- **50 new digital stations**
  - ✓ ***(10) new Broad Band Stations***
    - Sensor STS-2
    - Digitizer Q-330 6 channels

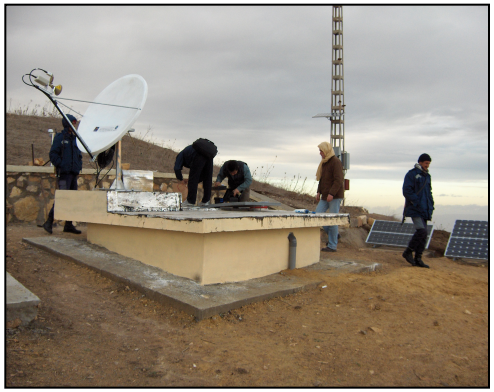
  - ✓ ***(40) Short Period***
    - Sensor SS-1
    - Digitizer Q-330 6 channels

  - ✓ ***(22) Episensor***
    - Sensor : (20) ES-T and (02) BBAS-2
    - Digitizer: (20) Q-330 6 channels and (02) EDAS-24IP

- **Central of data Management with a Real-Time processing (Antelope System 4.10).**



Site model



BB Stations in operation

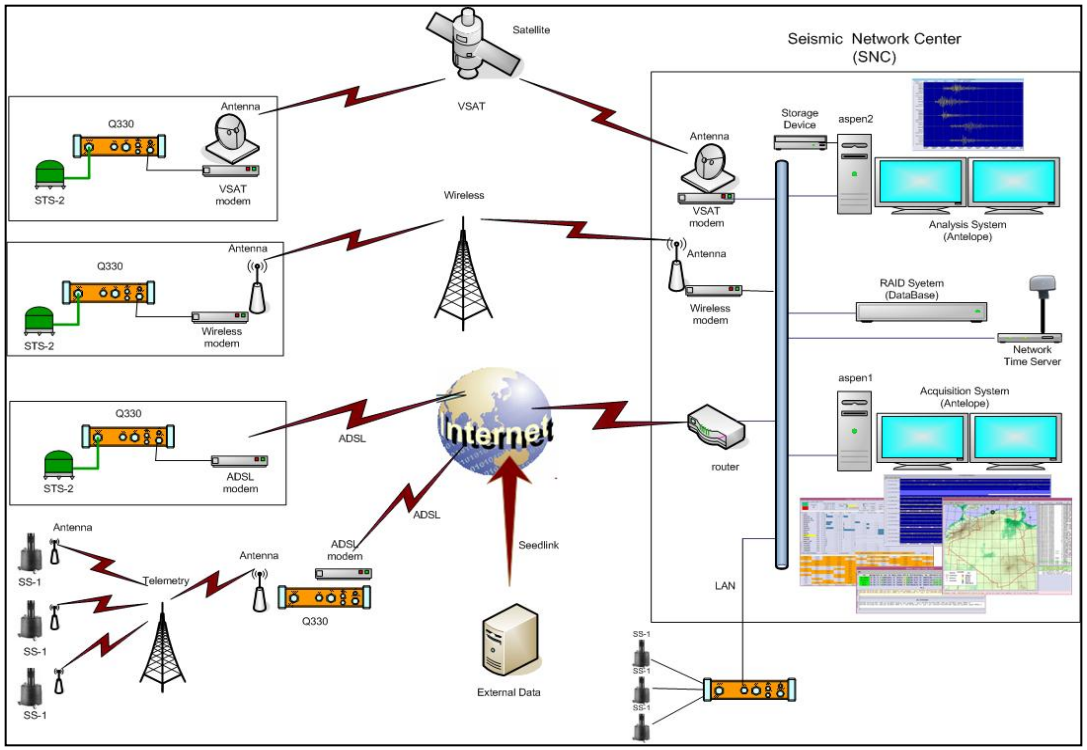
DC Power (Solar Panel)

VBB Stations in operation

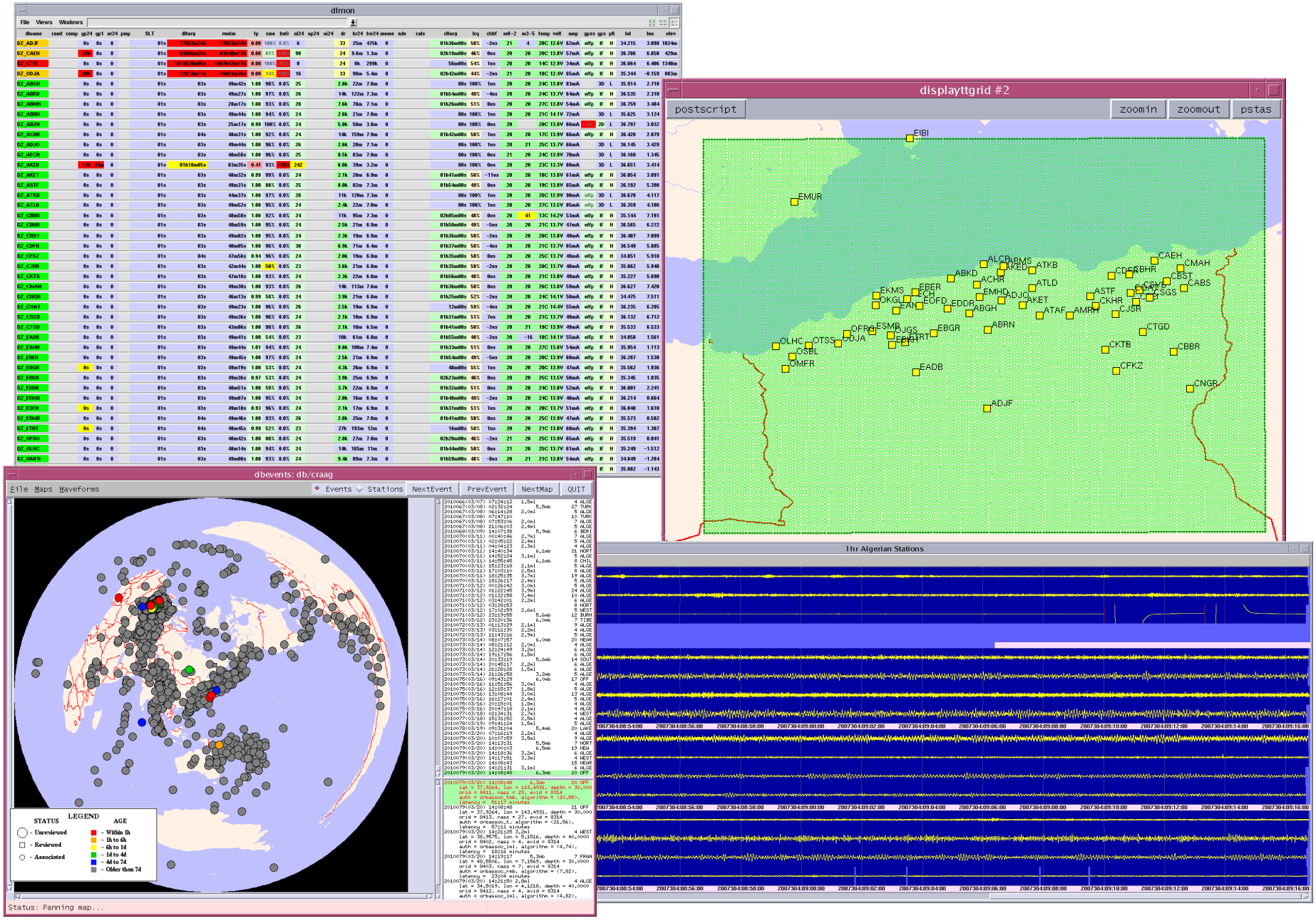
SP Stations in operation

Communication :

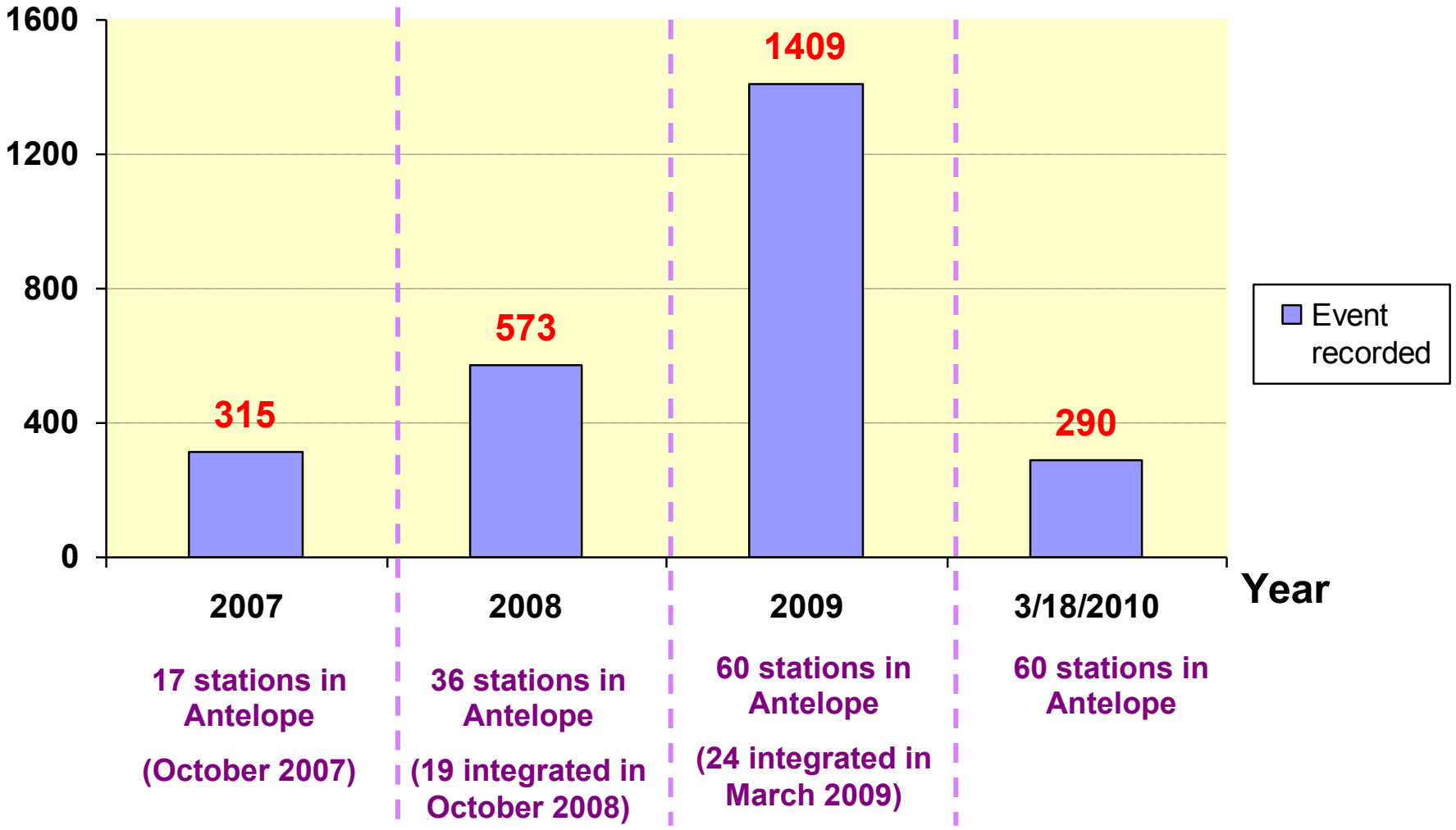
- ***VSAT :*** **10** Stations
- ***GSM/EDGE :*** **40** Stations
- ***ADSL :*** **01** Station
- ***Slink2orb :*** **08** Stations
- ***orb2orb :*** **01** Stations



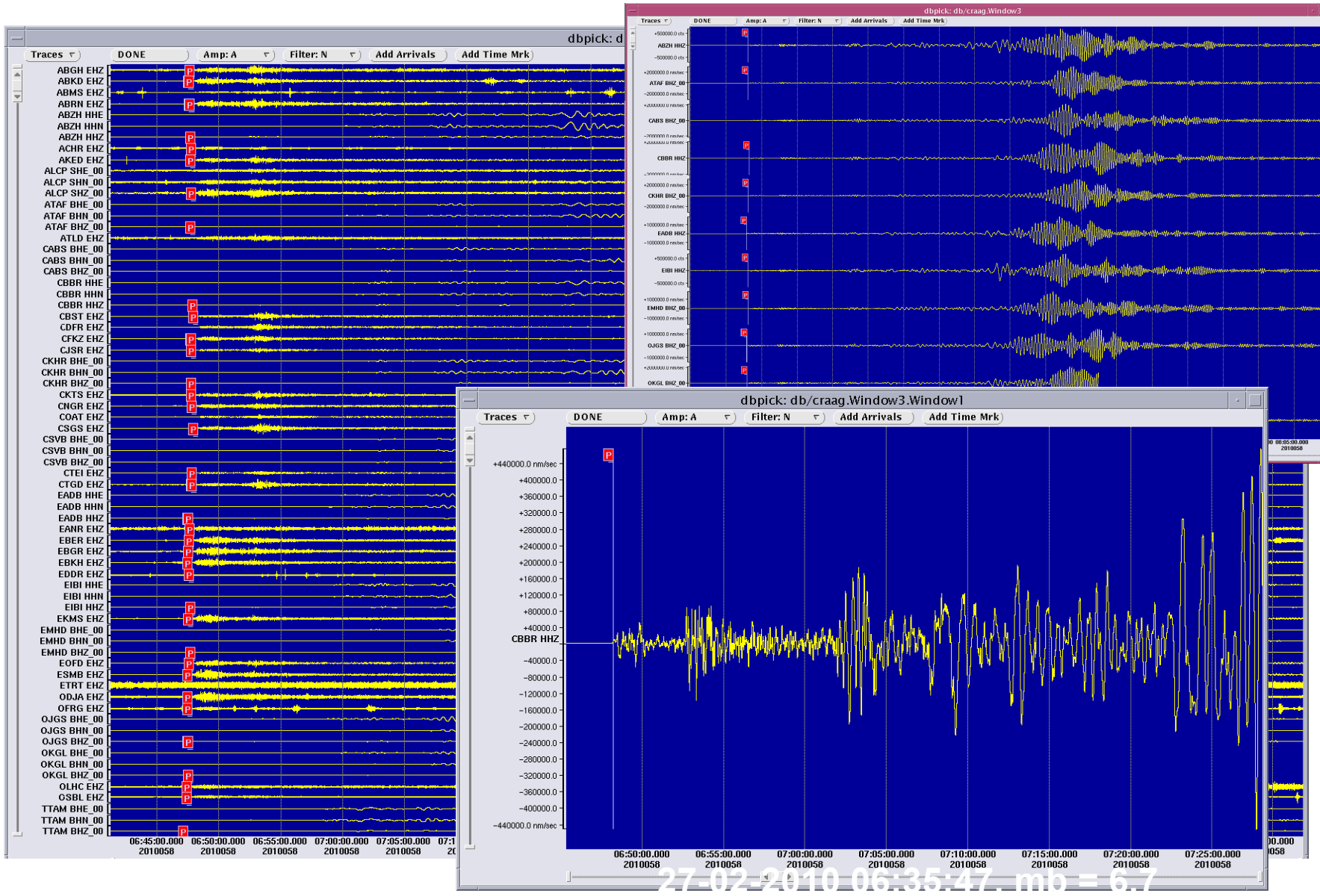
Real-time data acquisition and exchange


dlmon
displayttgrid #2
postscript
zoomin
zoomout
pstas
dbevents: db/craag
Events
Stations
NextEvent
PrevEvent
NextMap
QUIT
1hr Algerian Stations
STATUS
LEGEND
AGE
Unreviewed
Reviewed
Associated
Within 1h
1h to 6h
6h to 1d
1d to 4d
4d to 7d
Older than 7d
Status: Panning map...

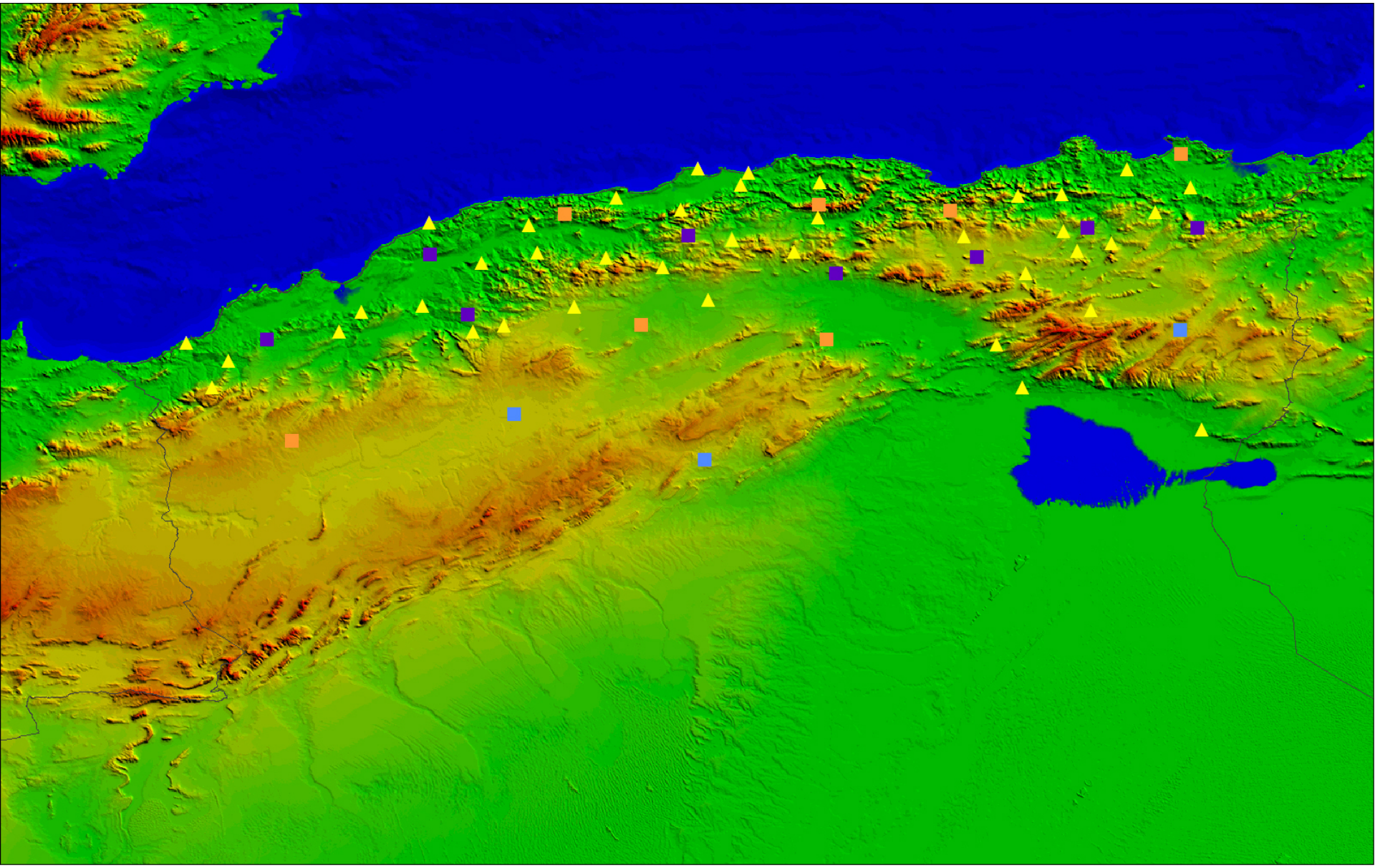
Events recorded by Antelope



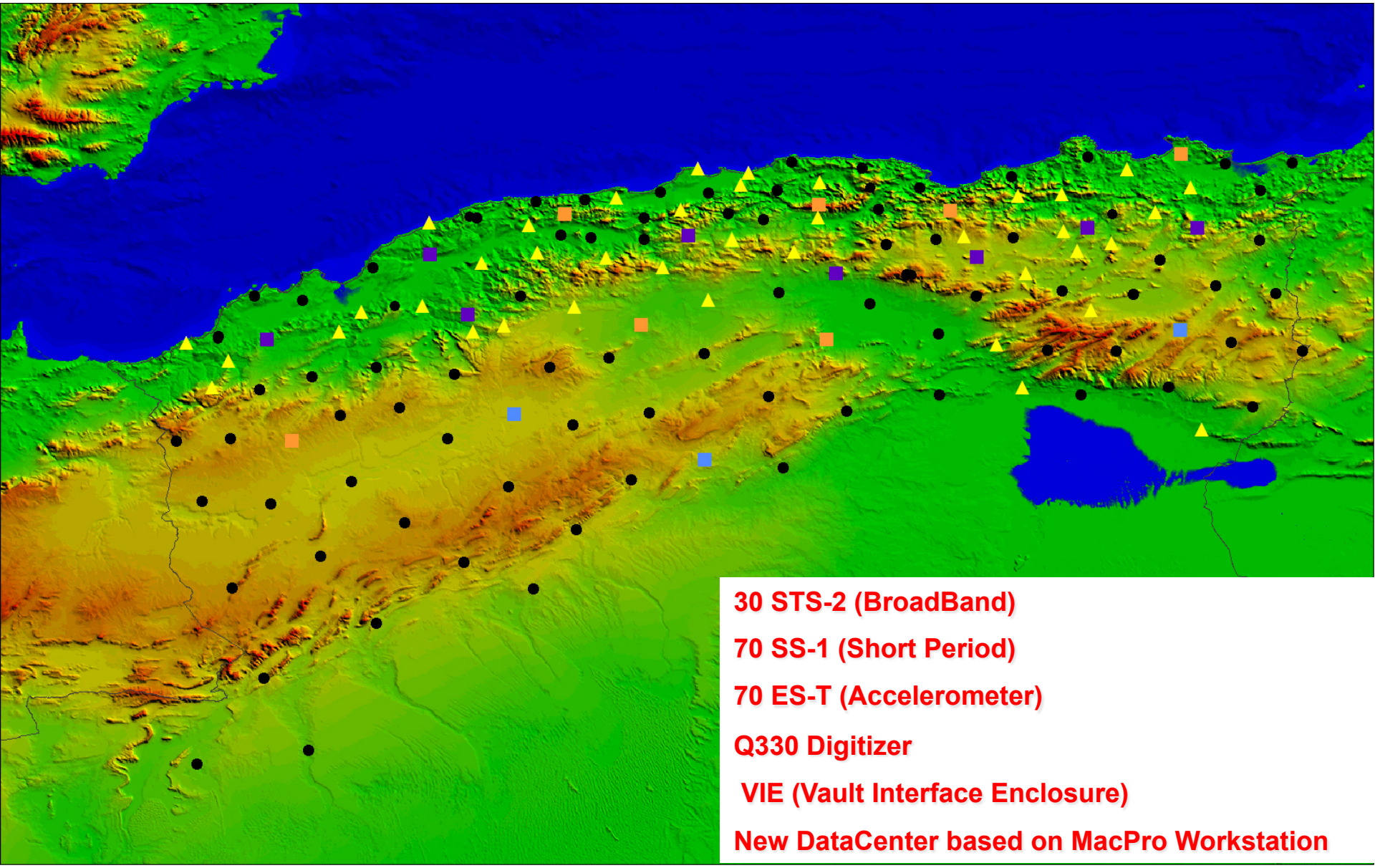
Chilean Earthquake



Actual ADSN



Future ADSN



30 STS-2 (BroadBand)

70 SS-1 (Short Period)

70 ES-T (Accelerometer)

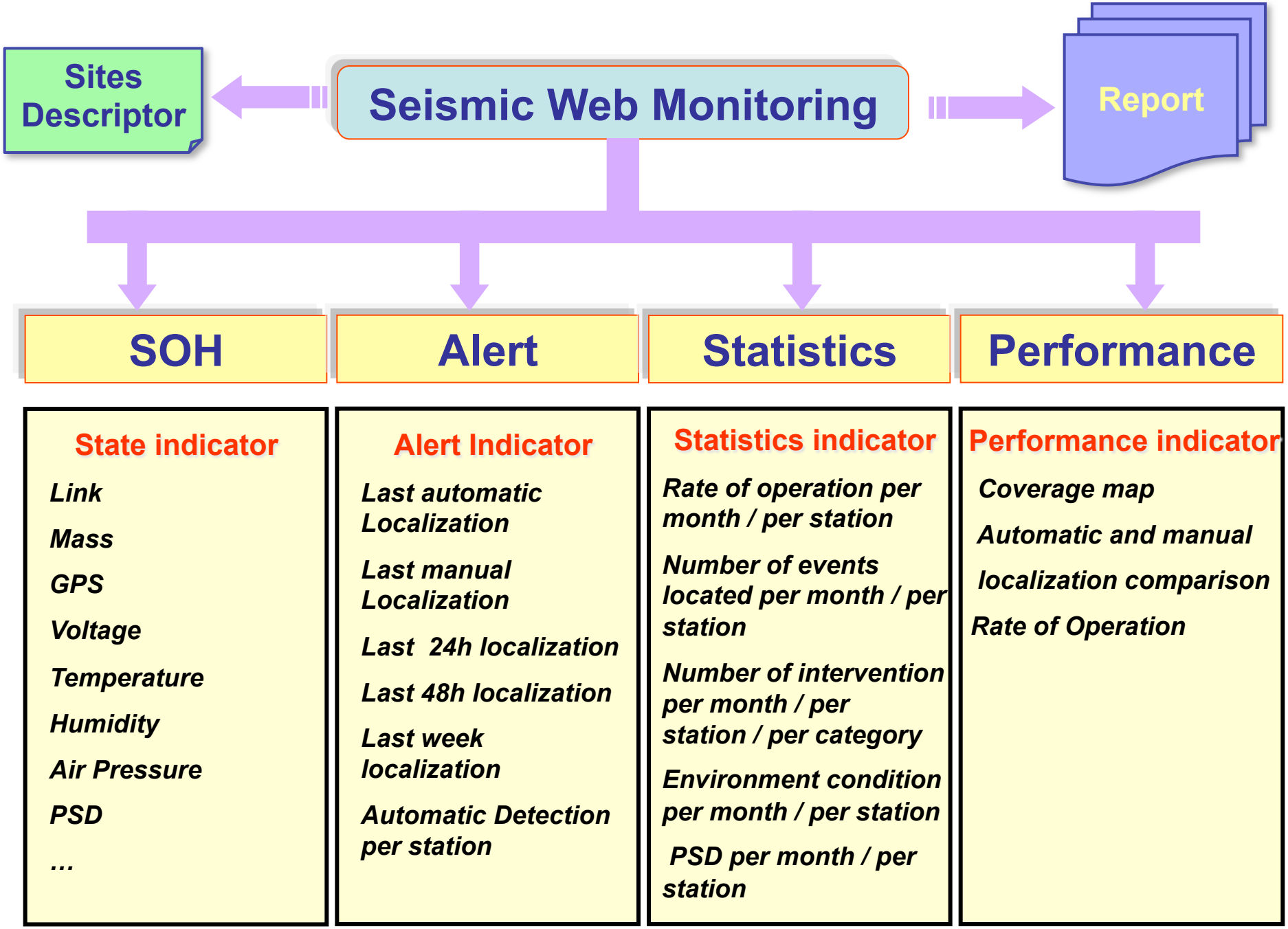
Q330 Digitizer

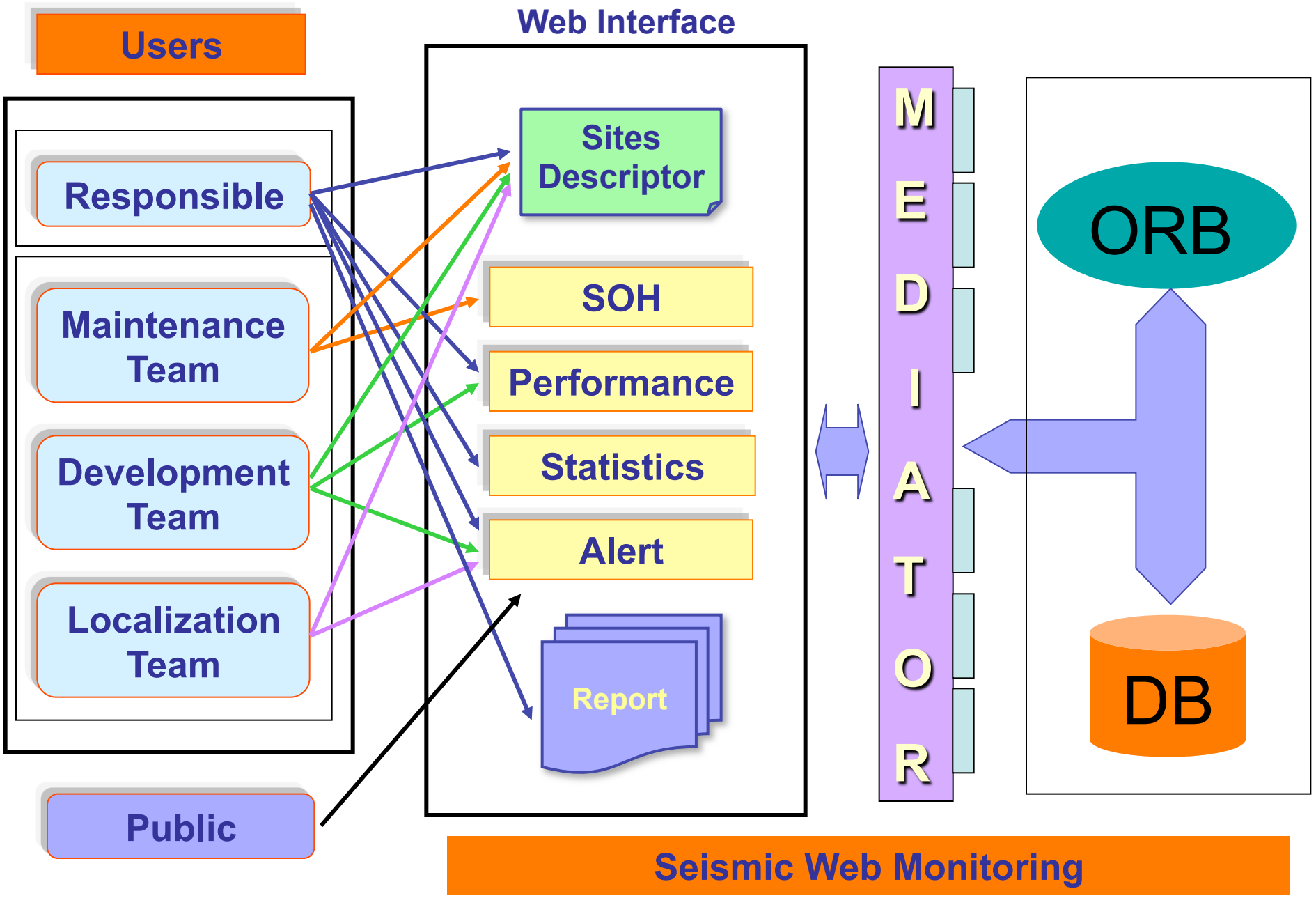
VIE (Vault Interface Enclosure)

New DataCenter based on MacPro Workstation

Future Development

Seismic Web Monitoring using *balanced scorecard* (*BSC*)


Sites Descriptor
Seismic Web Monitoring
Report
SOH
Alert
Statistics
Performance
State indicator
Link
Mass
GPS
Voltage
Temperature
Humidity
Air Pressure
PSD
…
Alert Indicator
Last automatic Localization
Last manual Localization
Last 24h localization
Last 48h localization
Last week localization
Automatic Detection per station
Statistics indicator
Rate of operation per month / per station
Number of events located per month / per station
Number of intervention per month / per station / per category
Environment condition per month / per station
PSD per month / per station
Performance indicator
Coverage map
Automatic and manual localization comparison
Rate of Operation


Users
Web Interface
Responsible
Maintenance Team
Development Team
Localization Team
Public
Sites Descriptor
SOH
Performance
Statistics
Alert
Report
MEDIATOR
ORB
DB
Seismic Web Monitoring

Sites Descriptor

Display Details of sites.

Private Access : ADSN Team's

*** Create a new tables for a no seismic equipments:**

- Communication mode : Type of modem, IP address, Link mode, Accessory used

- Detail of power used : AC or DC, Voltage, Solar Panel, Batteries, Charge Controller.

-Environment equipment : Type, IP Address

-Person to contact in site : Name, Phone number

- Details of the Interventions in sites

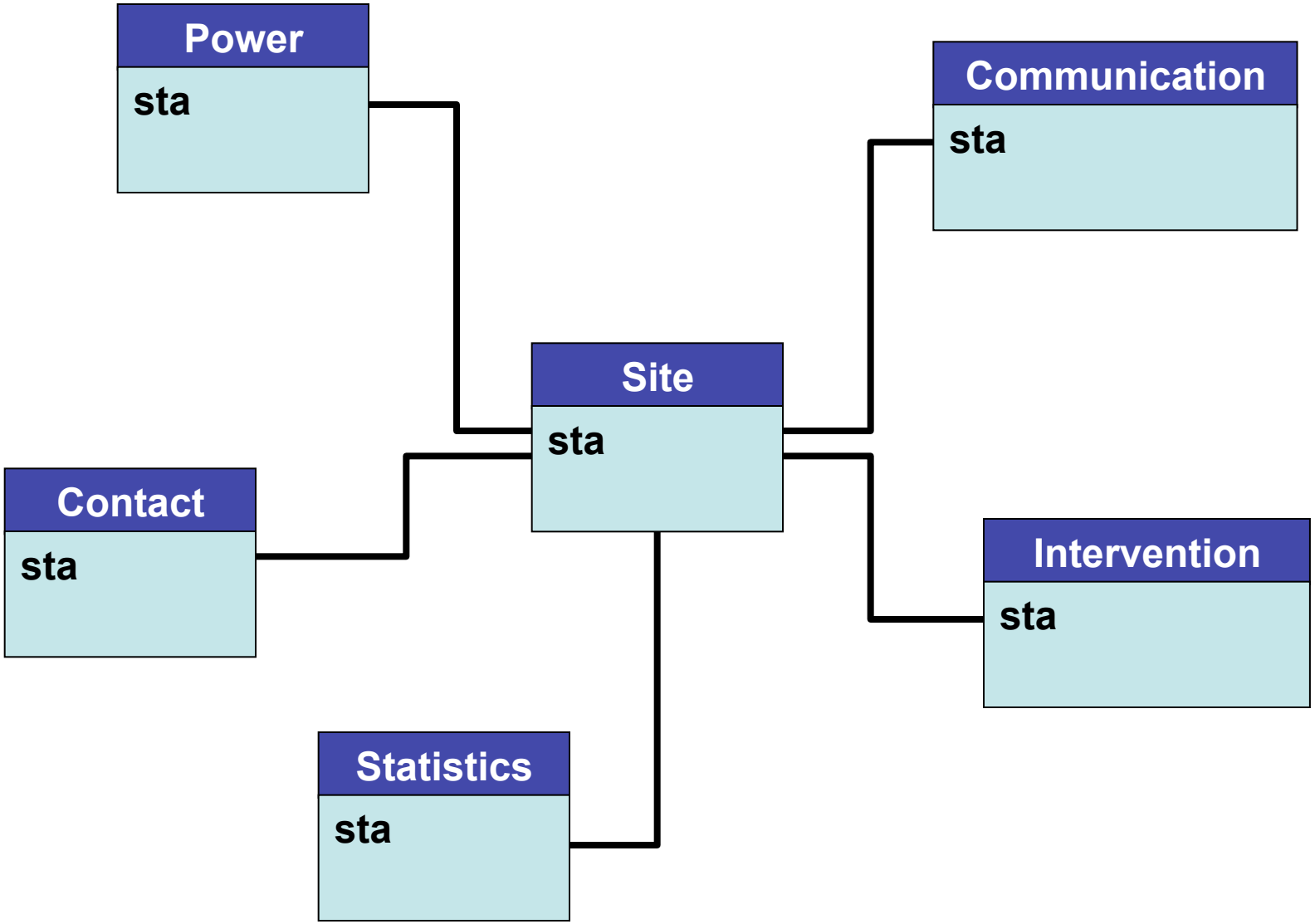
We need :

-Extend Schema css3.0 : Communication and Power, environment,

Contact, Intervention

- Use : dbcreate –r craag –s <schema> craag

- Generate a new interface to add details


Power
sta
Communication
sta
Site
sta
Contact
sta
Intervention
sta
Statistics
sta

EDAS-24IP

SOH

Display state of health.

Private Access : Maintenance Team, Responsible

- **Use WebdImon interface**
- **Create a new table for the Environment Condition : Temperature, Humidity and Air Pressure generated by External Environment Equipment**
- **Use PQLX to compute PSD**

We need :

-Extend Schema css3.0 : Env_Condition

- Use : dbcreate –r craag –s <schema> craag

- Create Script to input Temperature , Humidity, Air Pressure to the database

- Use PQLX

Alert

Display Last events (Last, 24h,48h, week)

Private Access : Localization and Development Teams, Responsible

Public Access only for manual localization

- Use event web interface only for last event, 24h, 48h, one week

- Generate Alert for the one Detection

We need :

- Create a Script to Display automatic detection per Station

Statistics

Display Statistics :

- Rate of operation per month / per station

- Number of events located per month / per station

- Number of intervention per month / per station / per category

- Environment condition per month / per station

- PSD per month / per station

Private Access : Responsible

- **Create a new table : Statistics Table**
- **Use PQLX to generate PSD**

We need :

- Extend Schema css3.0 : Statistics

Use : dbcreate –r craag –s <schema> craag

- Create Script to add statistics calculated every month in the database

Performance

Display :

- Coverage map

- Comparison between automatic and manual localization

- Rate of Operation indicator

Private Access : Development Teams, Responsible

-Define values of performance indicators

(ex : 99,99% of operation is expected)

We need :

- Create Web interfaces to display different performance indicators

Display Report.

Private Access : Responsible

Generate :

- Catalog

- Seismicity map

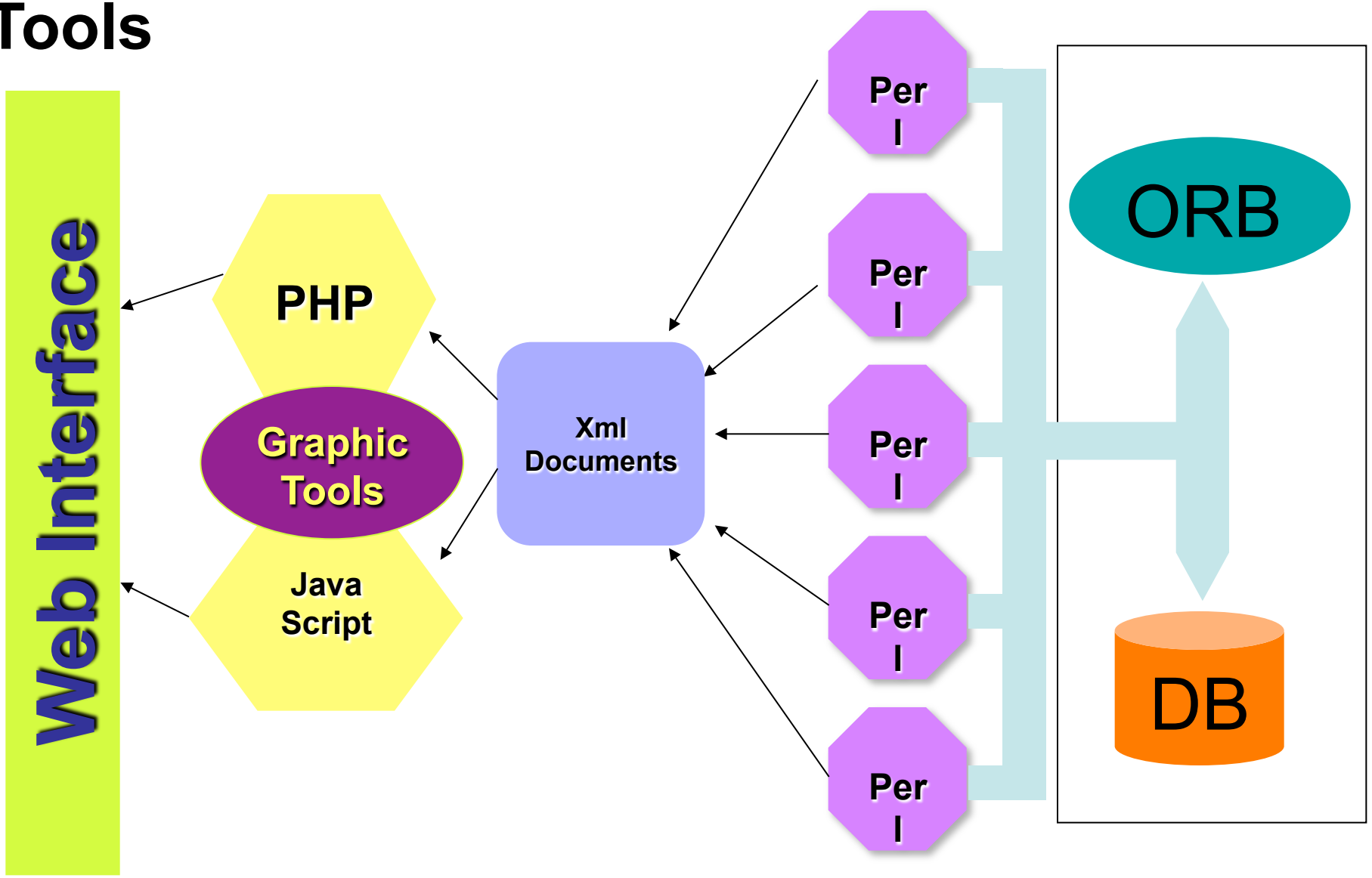
- Maintenance Report

- Statistic report

We need :

- Create Scripts to generate reports

Tools


Web Interface
PHP
Graphic Tools
Java Script
Xml Documents
Perl
Perl
Perl
Perl
Perl
ORB
DB