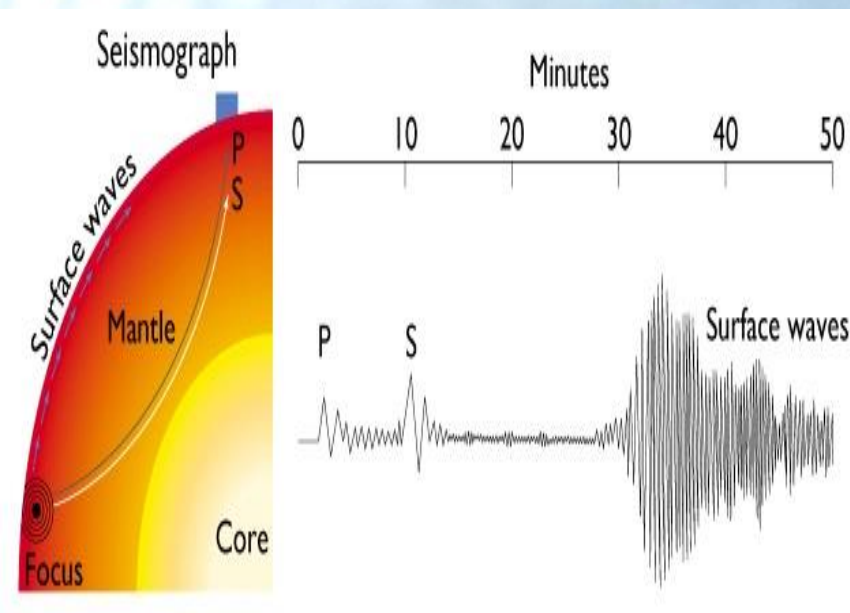




Republika e Kosovës
Republika Kosova-Republic of Kosovo
Qeveria-Vlada-Government

KOSOVO GEOLOGICAL SURVEYS



Zagreb 22 October , 2015



Geological-Geotectonic Setting

- From the geological point of view, Kosovo is in a very interesting territory. The area of Kosovo is characterised by a variety of geological formations
- Kosova has a varied geology that ranges in age from the Neo-Proterozoic to the holocene
- Seismic zoning, Kosovo (Figure 1) takes place in the Alpine-Mediterranean seismic belt. This generation seismic includes a wide area of contact between the plates Africa and Eurasia, from the azores to the eastern border of the mediterranean basin

Figure 1: Geotectonic Units of Central Balkan.



Figure 2, Geotectonic Units of Kosovo.

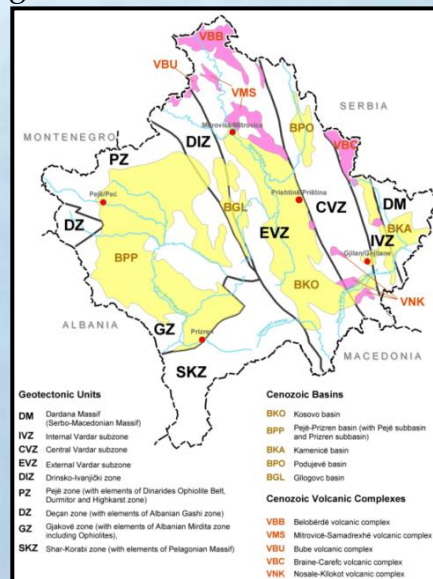
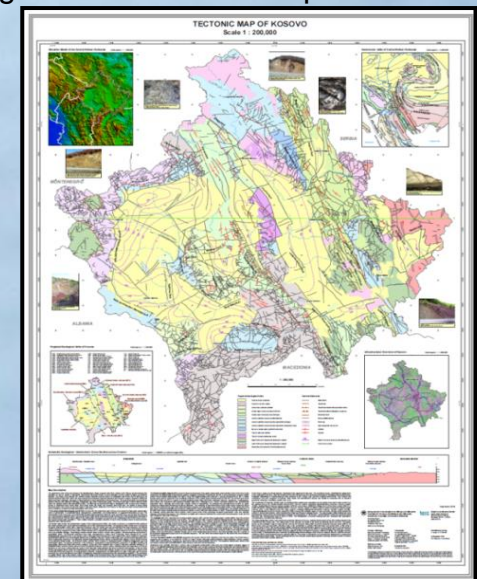


Figure 3. Tecntonic map of Kosovo.





THE SIZMOLOGY SEKTOR

- Seismology Sector monitors earthquakes in 6 points in Kosovo.
- By 2008 the sector is member EMSC (European Mediterranean Seismological Centre) ; EMSC is an exchange of data on earthquakes

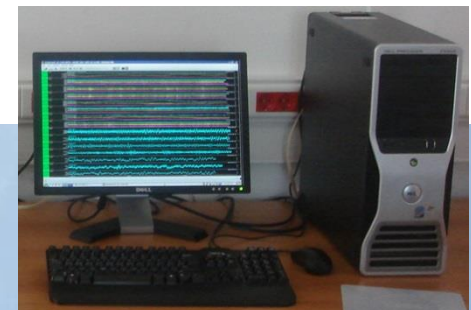


SeisComp Server 3.0
SeedLink
SeisGram2k

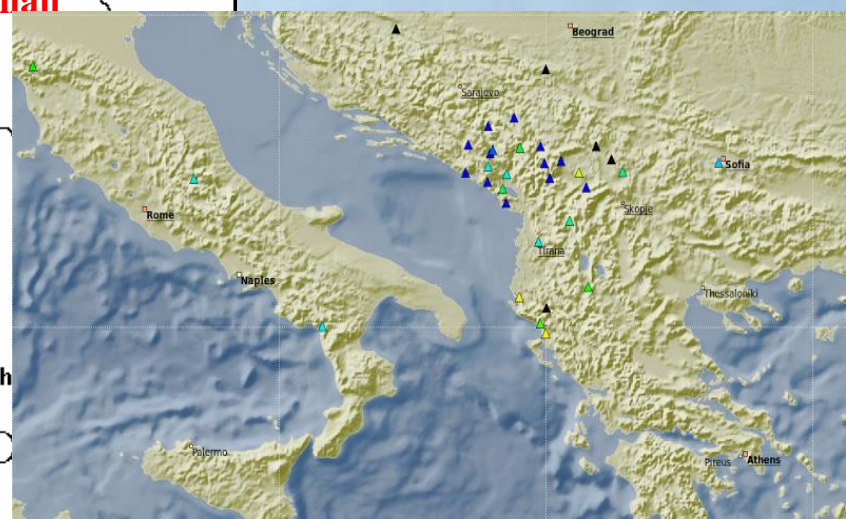
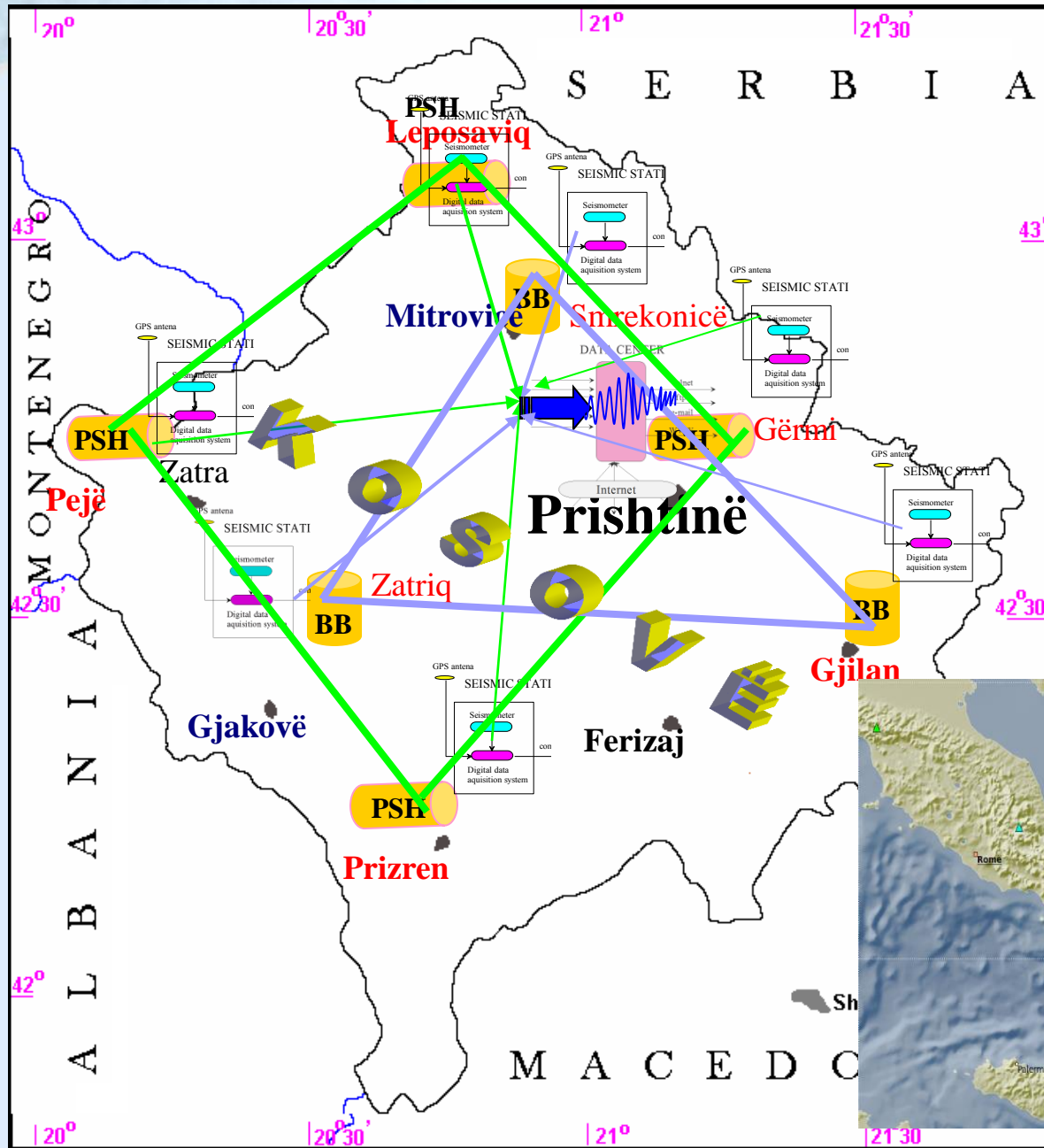


SMARTGeoHub Central Station

- SMARTDGeoServer Data Server & Database
- SMART24Config Setup & Control Client
- SMARTDBConfig
- FileGen
- SMARTQuake
- SMARTGeoHub Viewer Display Client
- SMARTExtract
- SeisPlus Interactive Data Processing

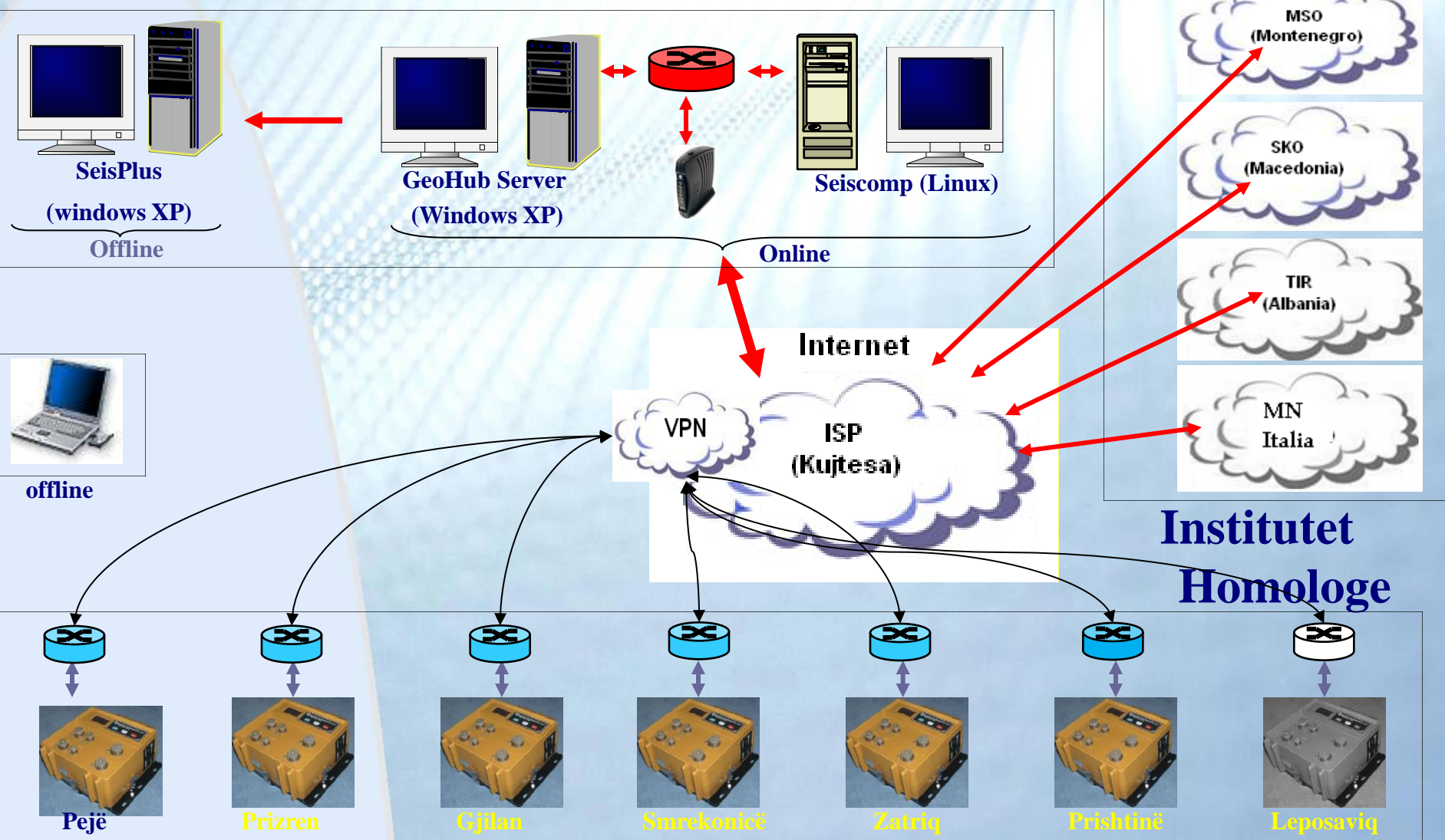


Kosovo Seismological Network



The topology of the Kosovo Seismological Network

Central Station



Stacionet Sekondare



SECOND STATION

■ Short period

- Pejë
- Prizren
- Prishtinë
- Leposavic



- Digitizer
- Short-Period Seismometer
 - Model: S-13 H (2H,V)
- Accelerometer Three Component
 - Model: PA 23

• Broadband

- Gjilan
- Smrekovnicë
- Zatriq



- Digitizer
- Broadband Seismometer
 - Model: KS-2000/M Rev.1
- Accelerometer Three Component
 - Model: PA 23

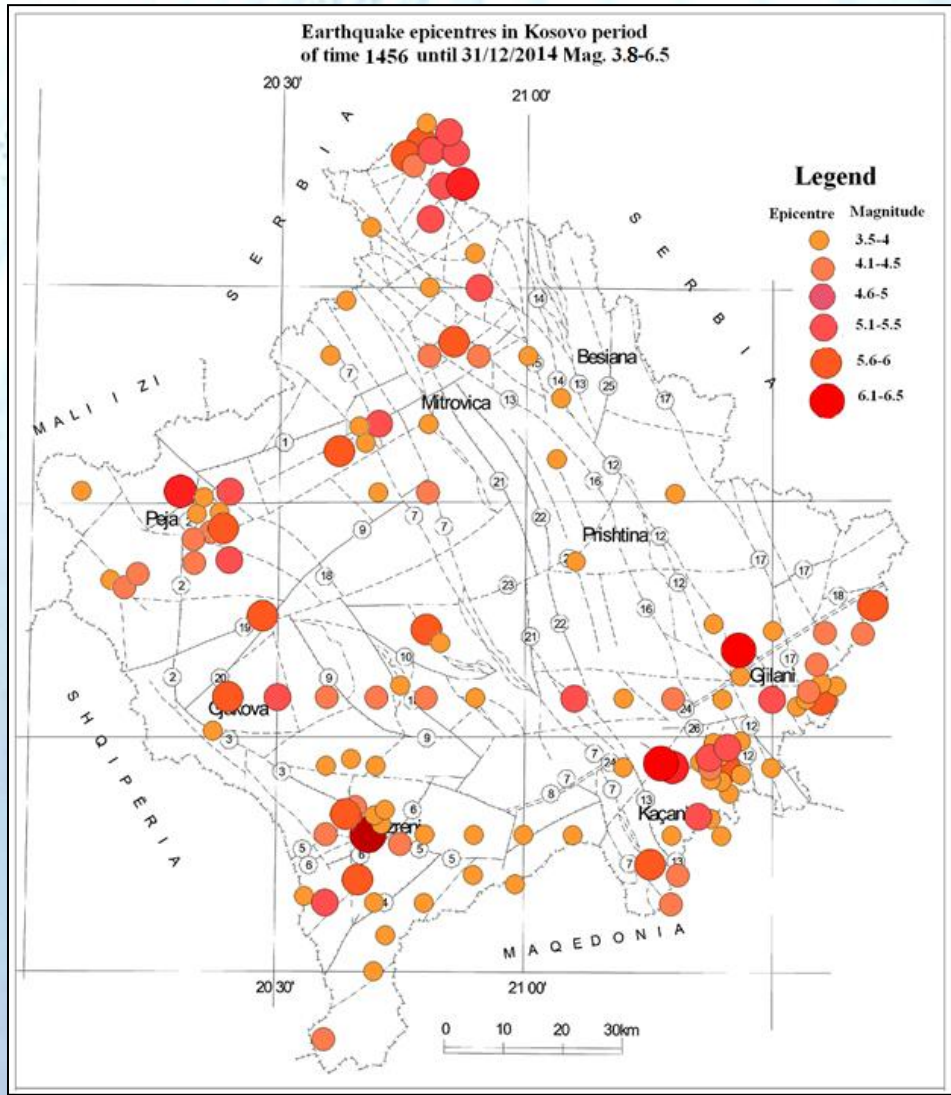


SEISMIC RISK MAP FOR THE TERRITORY OF KOSOVO

The main areas of seismic source in Kosovo

- Seismic zone Prizren and Peja
- Seismic zone Ferizaj-Viti-Gjilan
- Seismic zone Kopanonic

Number earthquake 152	Intensity MSK-64 scale
89	V
37	VI
13	VII
10	VIII
3	IX

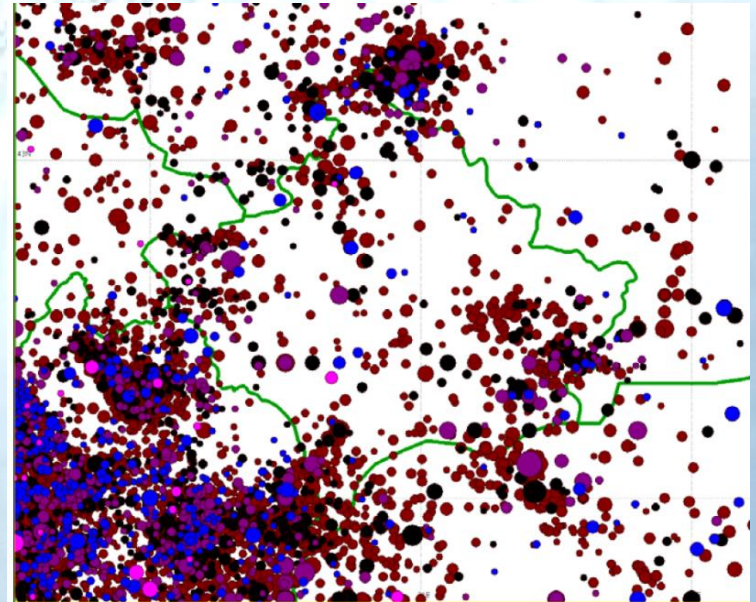




SEISMIC RISK MAP FOR KOSOVO



- On the basis of data of earthquakes is designed for magnitude earthquakes catalog momentum around 3300 MW which includes events with $M > 3.5$ for the period from 58 BC until 31/12/2008.
- Magnitudes M_s and m_b of ISC are converted into MW using the relevant report issued by Scordilis (2006)



Historical map of earthquakes



- Seismic risk maps are constructed on the basis of maximum danger probability seismic, which characterize the changes spatial maximum acceleration (PGA) and hazard spectra (SA) index 5% and period suppression, 0.1 sec, 0.2sec, 0,3 sec, 0.5 sec,1 sec, and 2 sec
- From the above parameters, evaluations are conducted for six iterative times 95, 475, 975, 2475, 5000 and 10000 year
- These parameters belong probability of exceeding 10% in 10 years, 10%, 5%, 2%, 1% in years

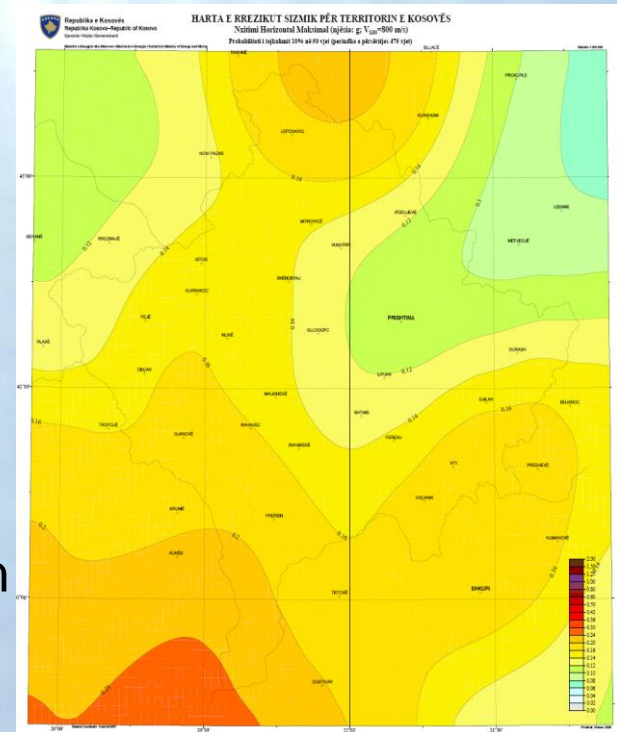




Figure 1 seismic risk map of Kosovo for the period PGS repeater rock kondida 95 years ($V_{s30} = 800$ m / sec

Fig 1.

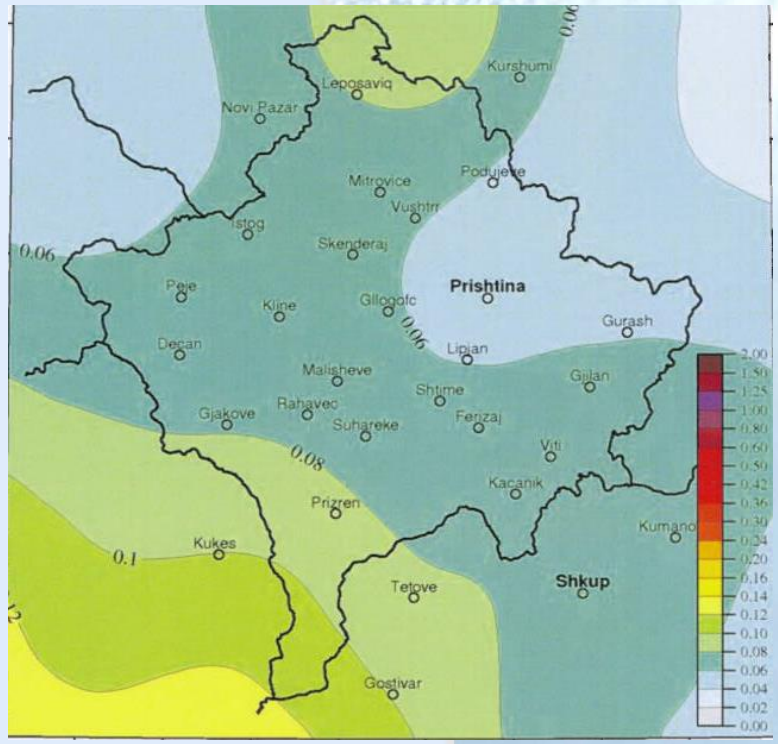


Figure 2 seismic risk map of Kosovo for the period PGS repeater rock kondida 475 years ($V_{s30} = 800$ m / sec

Fig 2.

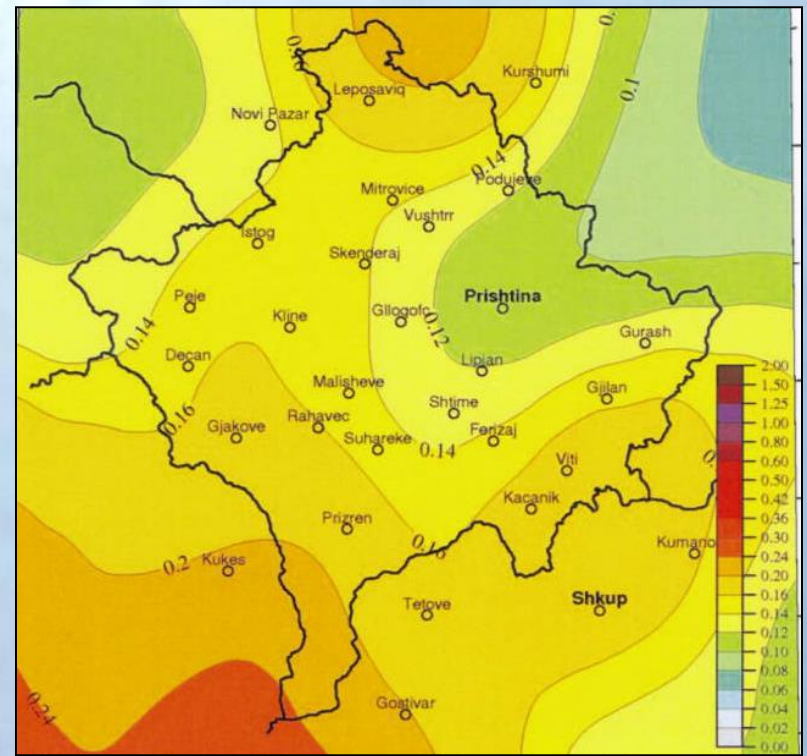




Figure 3. shows the curve of seismic hazard for the city of Pristina, the PGA and spectral acceleration SA for periods greater interest engineering
Fig 3

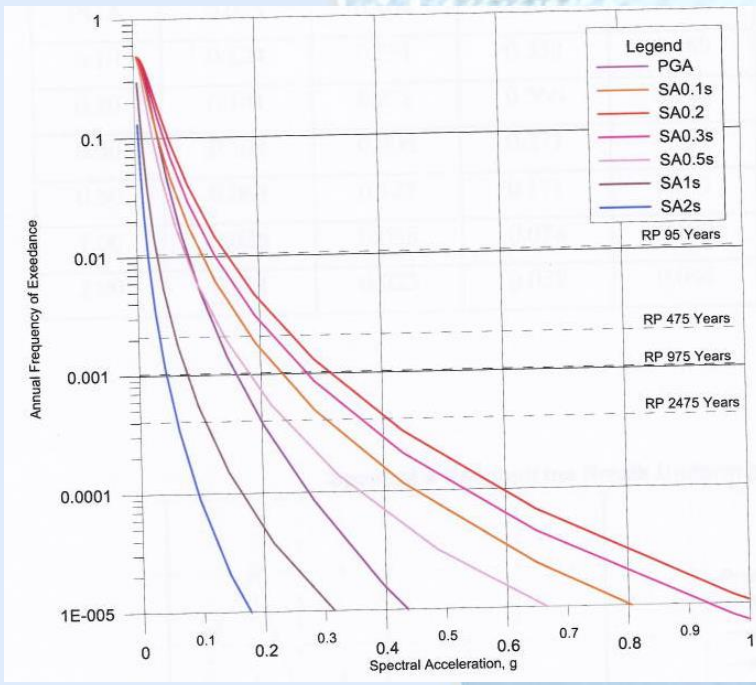


Table 1, the maximum values of PGA and SA (5% remission) in rock conditions in Pristina

Perioda (sek)	Nxitimet spektrale, g					
	PP=95 (vjet)	PP=475 (vjet)	PP=975 (vjet)	PP=2.475 (vjet)	PP=5.000 (vjet)	PP=10.000 (vjet)
PGA	0.055	0.104	0.135	0.185	0.233	0.289
0.10	0.124	0.251	0.330	0.459	0.579	0.716
0.20	0.141	0.278	0.366	0.510	0.644	0.801
0.30	0.104	0.206	0.271	0.381	0.485	0.610
0.50	0.064	0.129	0.171	0.241	0.310	0.393
1.00	0.026	0.055	0.074	0.107	0.139	0.178
2.00	0.011	0.023	0.032	0.046	0.060	0.077



- Presented results maximal the plot of acceleration (PGA) and spectral accelerations (SA) with suppression 5%, for periods of repetition 95, 475, 975, 2475, 5000 and 10000 year belonging probability 10% in 10 years, 10%, 5%, 2%, 1% in 100 years.
- The evaluation was conducted under a rock valve with average speed crossbar 30 m $V_s = 800 \text{ m / s}$ belonging to category A, according to Eurocode 8.
- For Kosovo evaluation results are in compliance with the full standard of Eruocodit 8 seismic zoning and building codes.



THANK YOU