Strain field on the Sicily-Calabria (Southern Italy) from seismic and geodetic data


POCAL MECHANISM OF EARTHQUAKES

The focal mechanism of the 6.1 Sicilian earthquake in 1968 is shown. The red and white beachball shows the orientation of the principal stress axes. The double Azimuthal error ellipses and the size of the focal mechanism are used to estimate the location of the fault plane and the orientation of the principal stress axes. The focal mechanism is used to determine the type of seismic event and to constrain the earthquake source parameters.

SEISMICITY

The seismicity of Sicily and Calabria is concentrated in two well-defined zones: SCRZ (Siculo-Calabrian Rift Zone) and Northern Sicily. The SCRZ is characterized, as a whole, by the presence of seismotectonic secondary structures. Seismic data, extracted from various sources, indicate the presence of active faults and tectonic structures, but not on long-term seismic deformation. Therefore, the seismicity is considered shallow, less than 50 km of depth, with the exception of the area hit by the similar earthquakes.

EPICENTERS DISTRIBUTION

The epicentral distribution and CMT-RCMT seismic catalogs are shown. The CMT catalogue is used to determine the focal mechanism of earthquakes, while the RCMT catalogue is used to determine the location and timing of earthquakes. The seismic event distribution is used to estimate the location and size of the fault plane and the orientation of the principal stress axes.

PRINCIPAL TECTONIC STRUCTURES

The principal tectonic structures of Sicily and Calabria are shown. The SCRZ is characterized by the presence of seismotectonic secondary structures. Seismic data, extracted from various sources, indicate the presence of active faults and tectonic structures, but not on long-term seismic deformation. Therefore, the seismicity is considered shallow, less than 50 km of depth, with the exception of the area hit by the similar earthquakes.

GEO_DYNAMIC FRAMEWORK

The geodynamic framework of Sicily and Calabria is shown. The SCRZ is characterized by the presence of seismotectonic secondary structures. Seismic data, extracted from various sources, indicate the presence of active faults and tectonic structures, but not on long-term seismic deformation. Therefore, the seismicity is considered shallow, less than 50 km of depth, with the exception of the area hit by the similar earthquakes.

FEATURES OF SEISMICITY

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CONCLUSIONS

The sources of strain and seismicity, with similar earthquakes, are hit by similar earthquakes. The SCRZ is characterized by the presence of seismotectonic secondary structures. Seismic data, extracted from various sources, indicate the presence of active faults and tectonic structures, but not on long-term seismic deformation. Therefore, the seismicity is considered shallow, less than 50 km of depth, with the exception of the area hit by the similar earthquakes.