**Figures Guide**

1. **Introduction:**

These figures show information about 3685 seismic events (templates) occurred between 2010 and 2014 on the Alto-Tiberina fault plane in Central Italy. We use 19 INGV stations deployed at surface from 2010 to 2011, and an additional borehole (depth=250m) station (BAT3) from 2012 to 2014. Figures show the yearly distribution of the 80th percentile of hypocentral distance, the local magnitude, the average number of channels recording the event, and the relative depth.

1. **80th percentile of Hypocentral Distance**

***Plot Construction Explanation****:* for each template a dataset of good records is obtained by using Kurtosis test to evaluate the signal to noise ratio of waveforms. In fact, the Kurtosis methodology measures the degree of symmetry of a seismic signal, that gives an indication of the wave propagation and noise effects affecting the record.

The hypocentral distance is considered for each channel and the 80th percentile of it is obtained for each template. These values are interpolated on a regular grid having a step of 0.1° (value close to the minimum inter-station distance) and mapped using a contour plot. In this figure the 80th percentile of hypocentral distance ranges from 10 km to 60 km.

***Interpretation of the results:*** the resulting maps are similar for the different years. In particular, they show short hypocentral distances in correspondence of the center of gravity of the considered network and long distances close to the borders of the network (especially the E-SE border). These results seems to indicate that templates that occur in the center of the network can be well detected by the closer central stations while the events close to the network border area well detected also by the stations at higher distance. This result can be simply explained by the geometry of the network with respect to the single epicenter template. In fact, templates occurring close to the center of the network are surrounded by a greater number of stations having short epicentral distances. For templates originating at the edge of the network the station epicentral distances, on average, are 3 times higher than templates close to the network barycenter. In addition, we note that maximum hypocentral distance values tend to decrease after 2010. This behavior is related to the position of the seismicity respect to the spatial distribution of the INGV network. In fact, in 2010 the barycenter of seismicity appears to be significantly far from the center of the network while, after 2010, seismicity is localized in areas closer to the center of the network.

1. **Local Magnitude**

***Plot Construction Explanation****:* for each template the local magnitude has been reported. These values have been interpolated on a regular grid having spatial step of 0.1° (value close to the minimum station distance) and showed using a contour plot in order to have a smoothed variation of magnitude values on the map.

In this figure the local magnitude ranges from -1.5 to 1.5.

***Interpretation of the results:*** Despite the magnitude maps of every year are sensibly different from each other, we note that during the period 2010-2014 lower magnitude events are on average located in the westernmost part of the considered network area that corresponds to the shallower volume of the ATF Plane. On the contrast, higher magnitude events seem to occur more frequently in correspondence of the deeper volume of the ATF main fault.

1. **Number of Good Channels**

***Plot Construction Explanation****:* for each template the number of good quality channels for the considered network is reported. These values have been interpolated on a regular grid having spatial step of 0.1° (value close to the minimum station distance) and showed using a contour plot.

In this figure the number of good quality channels ranges from 10 to 40.

***Interpretation of the results:*** Comparing data quality maps with the local magnitude (figures 2), the higher number of good channels is shown by the higher magnitude events. A weaker relation could also be retrieved for the lower values of good channels and the smaller magnitudes. These findings are supported by the figure 5.

1. **Templates Depth**

***Plot Construction Explanation****:* for each template the corresponding hypocenter depth has been reported. These depth values have been interpolated on a regular grid having spatial step of 0.1° (value close to the minimum station distance) and showed using a contour plot.

In this figure the template depth ranges from 2 km to 17 km.

***Interpretation of the results:*** All the maps obtained for the 5 years show a very similar to each other. In particular they show the dipping of the fault plane from NW to SE. In addition, the highest values of depth, represented with red color, seem to indicate a steeper dipping of the fault plane in the northernmost part of the ATF volume.

1. **Number of Good Channels VS Local Magnitude**

***Plot Construction Explanation****:* The number of good channels (according to the Kurtosis methodology) has been reported as a function of the local magnitude for every template.

***Interpretation of the results*:** The figure shows a good correlation between the number of good channels and the magnitude of the template. This result can contribute to the interpretation of the figure 3 and shows that, as expected, a large set of good channels is available for the higher magnitude events.

1. **Number of Good Channels VS Depth**

***Plot Construction Explanation***: The number of good channels (according to the Kurtosis methodology) has been reported as a function of the depth for each template.

***Interpretation of the results:*** The figure doesn’t show a clear correlation between the number of good channels and the depth of the template.