

1 **Supplementary figures of “Brief communication - Vent opening at**  
2 **Campi Flegrei: clues from dyke propagation patterns”**

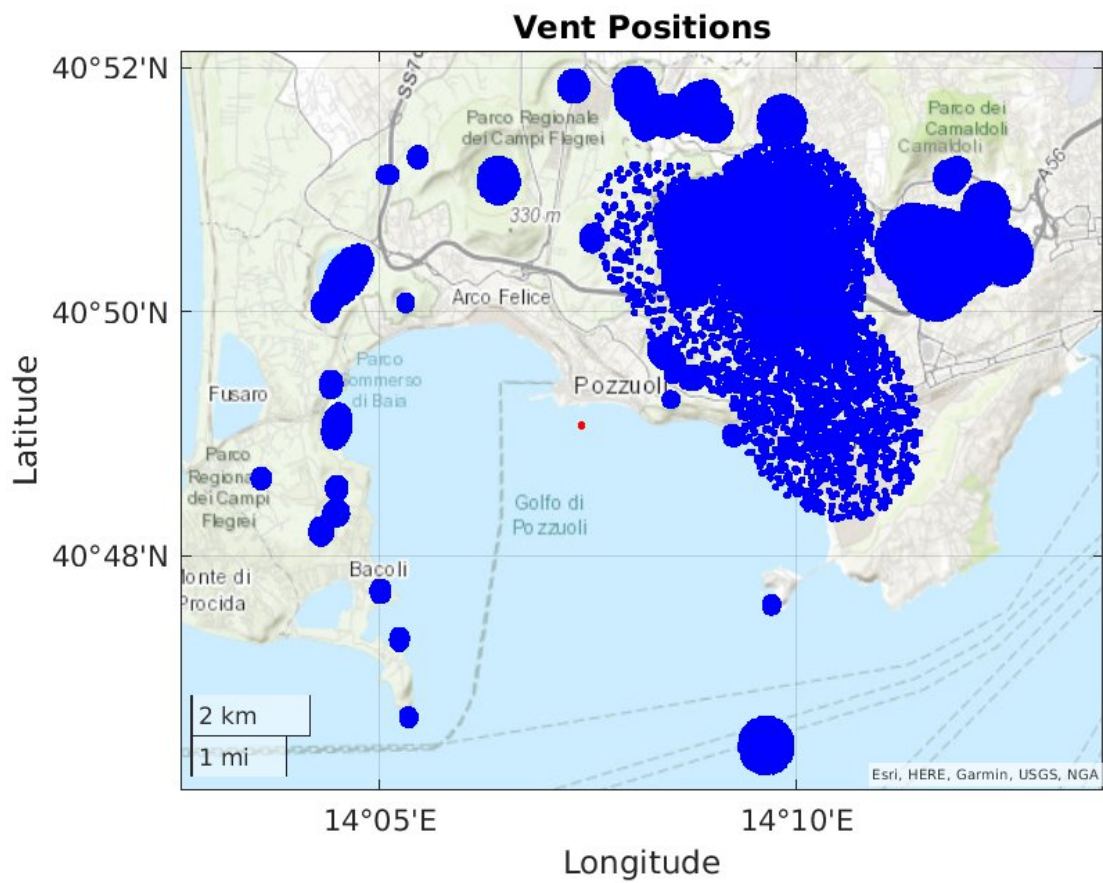
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5 Italy

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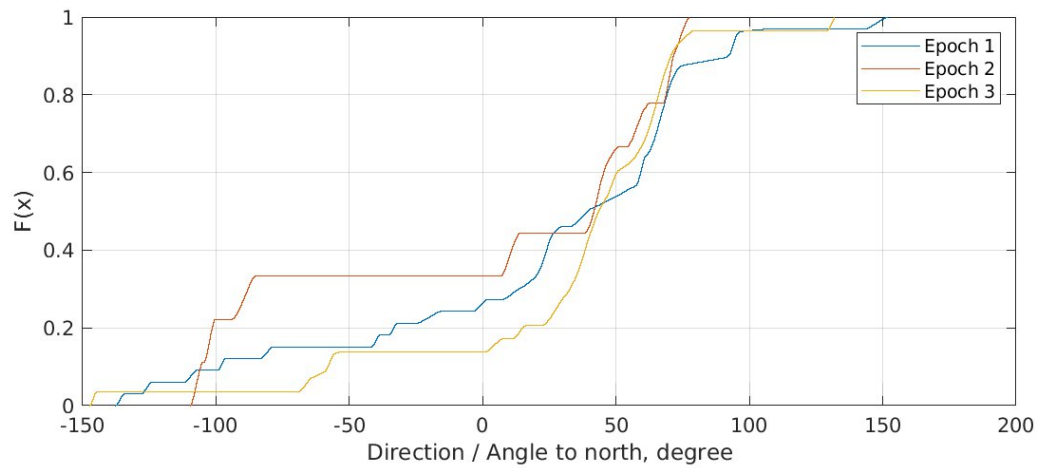
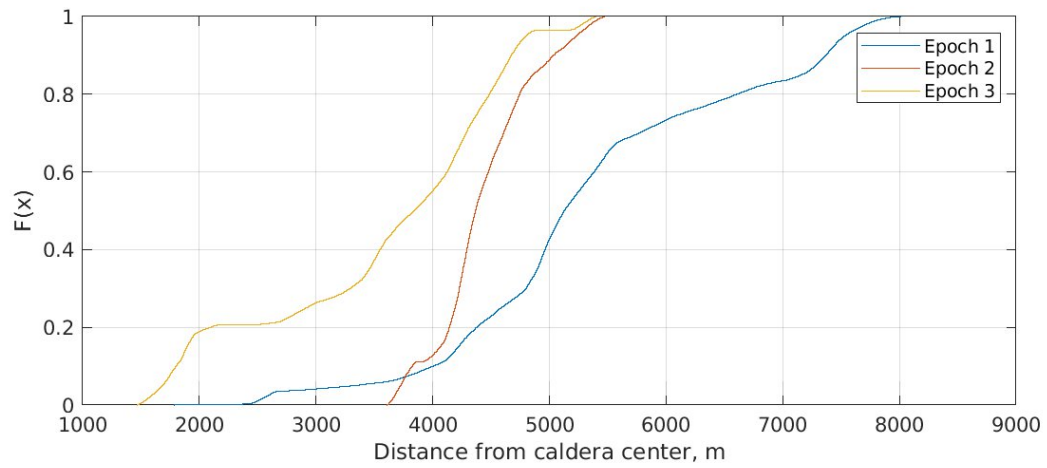


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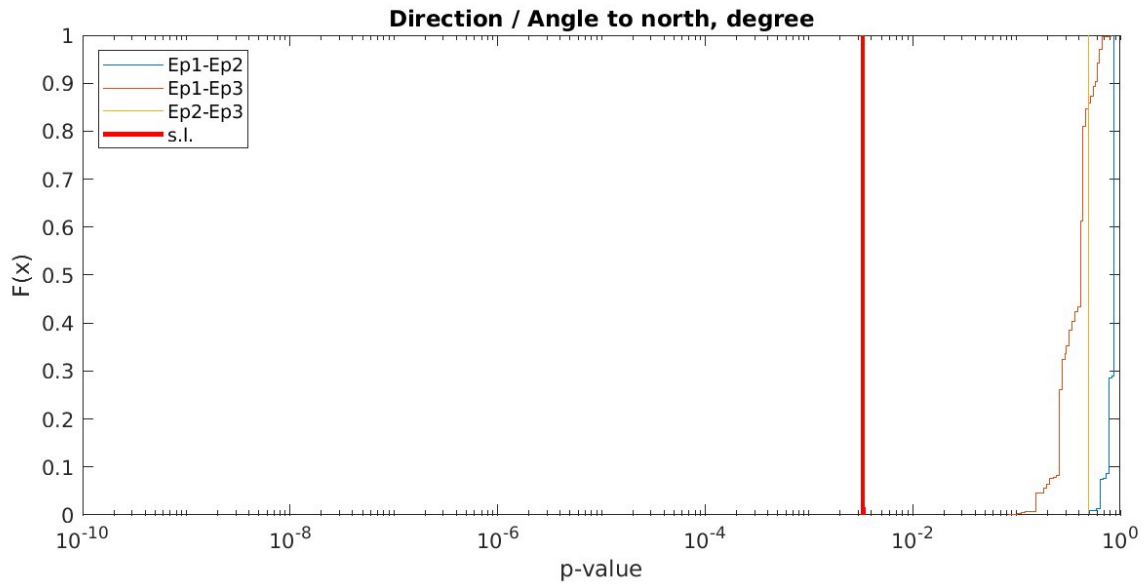
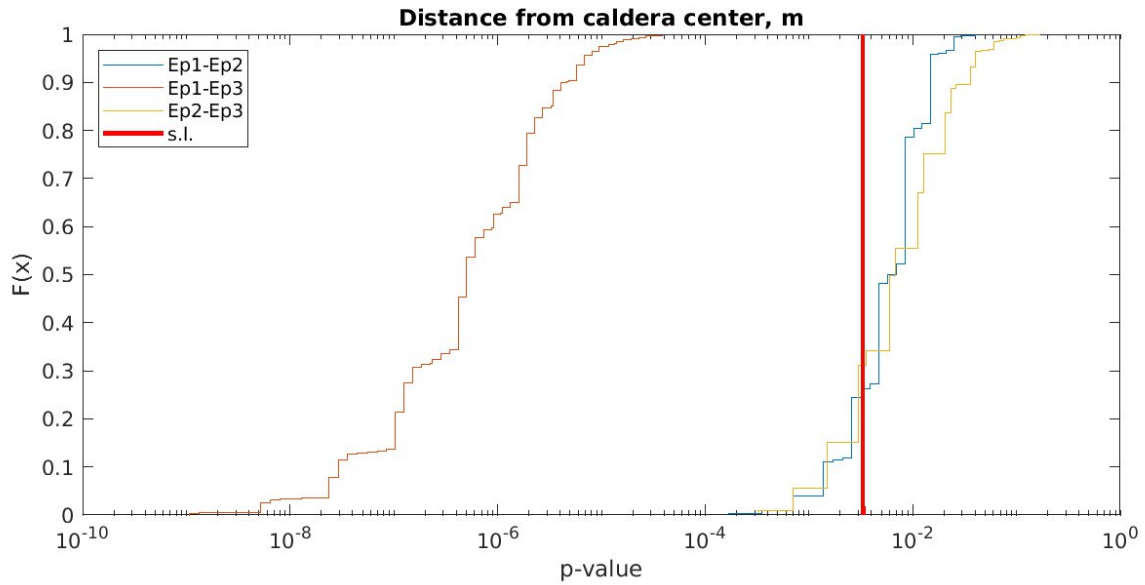
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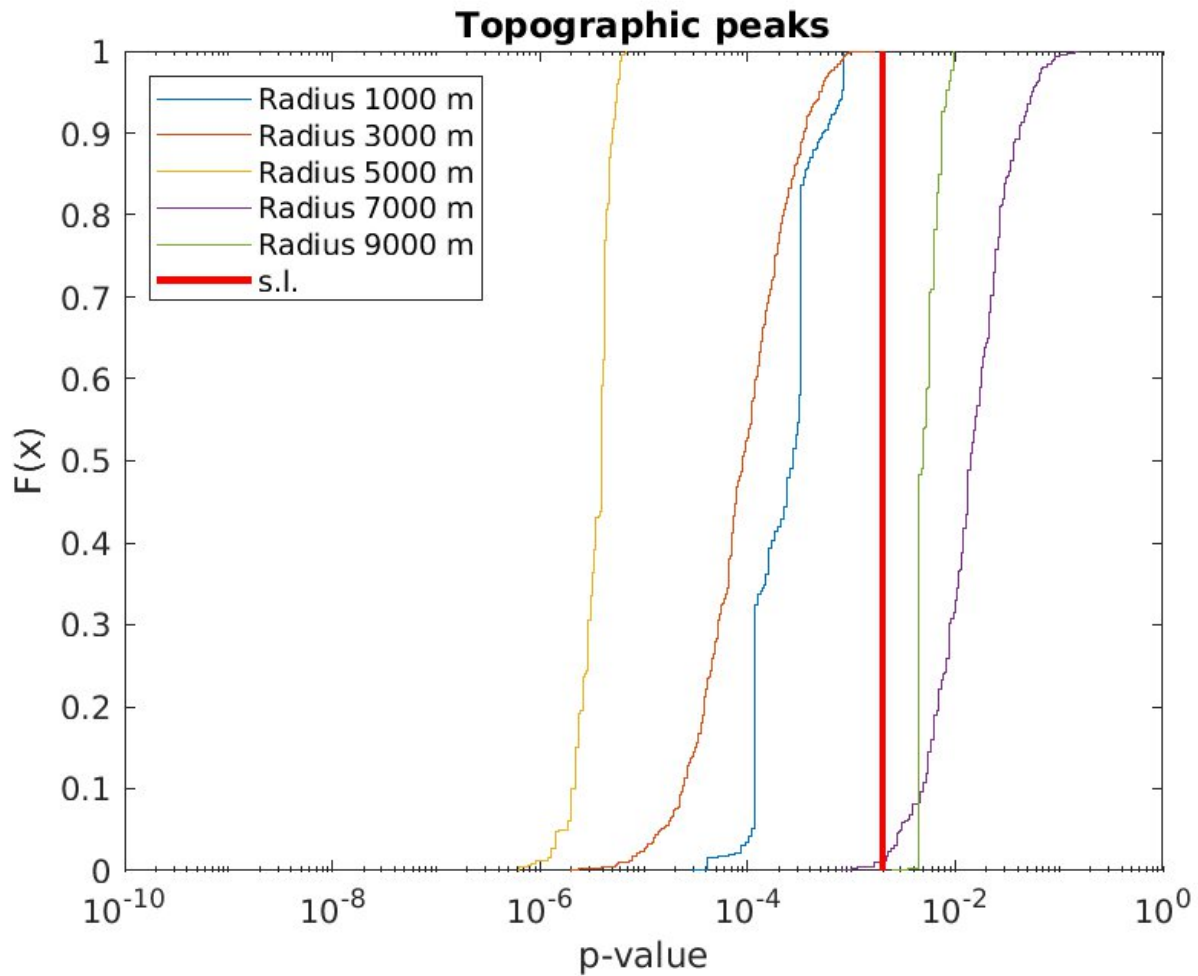
**Supplementary Figure 1:** Set of 1000 resampled vent locations of past Campi Flegrei eruptions, accounting for the uncertainty on vent location



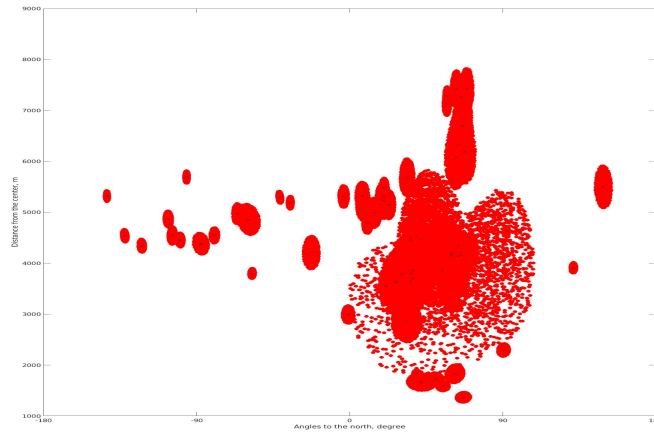
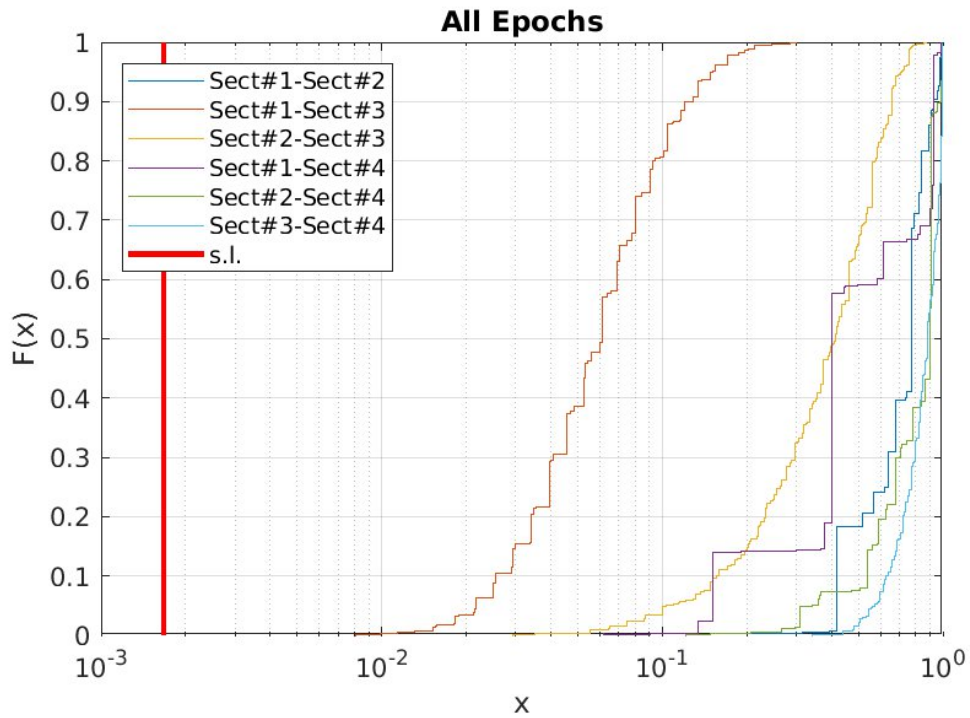
**Supplementary Figure 2** - Empirical cumulative distribution functions of (above) the distance-from-the-centre of the caldera and (below) azimuth angles, for the 3 epochs of activity .



**Supplementary Figure 3** - Distribution of p-values for the Kolmogorov-Smirnov test comparing distances (above) and angles (below) in the 3 epochs of activity, considering 1000 resampled vent locations of past Campi Flegrei eruptions to account for the uncertainty on vent position. The significance level (red line) is set to 0.01 and it is corrected for multiple testing using the Bonferroni (1936) criterion, that is by dividing by the number of comparisons.

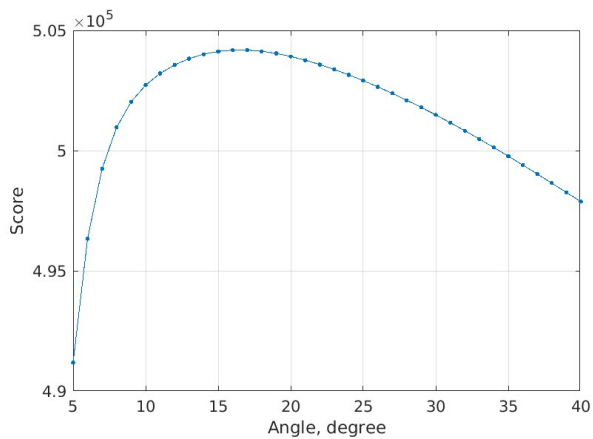
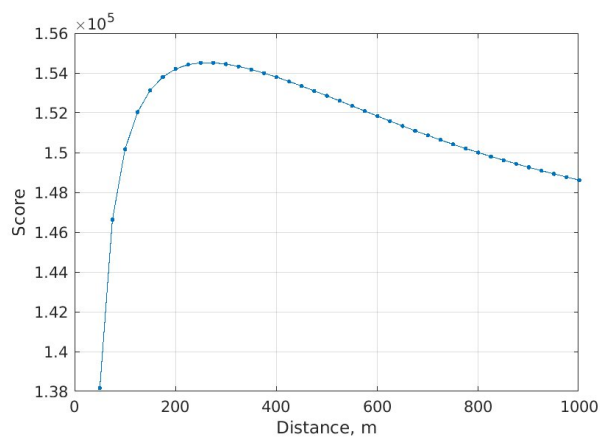


**Supplementary Figure 4** - Distribution of p-values for the 1-sample Kolmogorov-Smirnov test comparing the angular distribution of eruptions and topographic peaks within different radii from the caldera center. The distribution is obtained considering 1000 resampled vent locations of past Campi Flegrei eruptions to account for the uncertainty on vent position. The significance level (red line) is set to 0.01 and it is corrected for multiple testing using the Bonferroni (1936) criterion, that is by dividing by the number of comparisons. ¶



**Supplementary Figure 5** - (above) Distribution of p-values for the 2-samples Kolmogorov-Smirnov test comparing the correlation between azimuth and distance, comparing the distance distribution in the four sectors. Sector 1 to 4 correspond to NE, SE, SW, NW. The distribution is obtained considering 1000 resampled vent locations of past Campi Flegrei eruptions to account for the uncertainty on vent position. The significance level (red line) is set to 0.01 and it is corrected for multiple testing using the Bonferroni (1936) criterion, that is by dividing by the number of comparisons. (below) Bi-variate plot of distance vs angles, considering uncertainty of vent location.

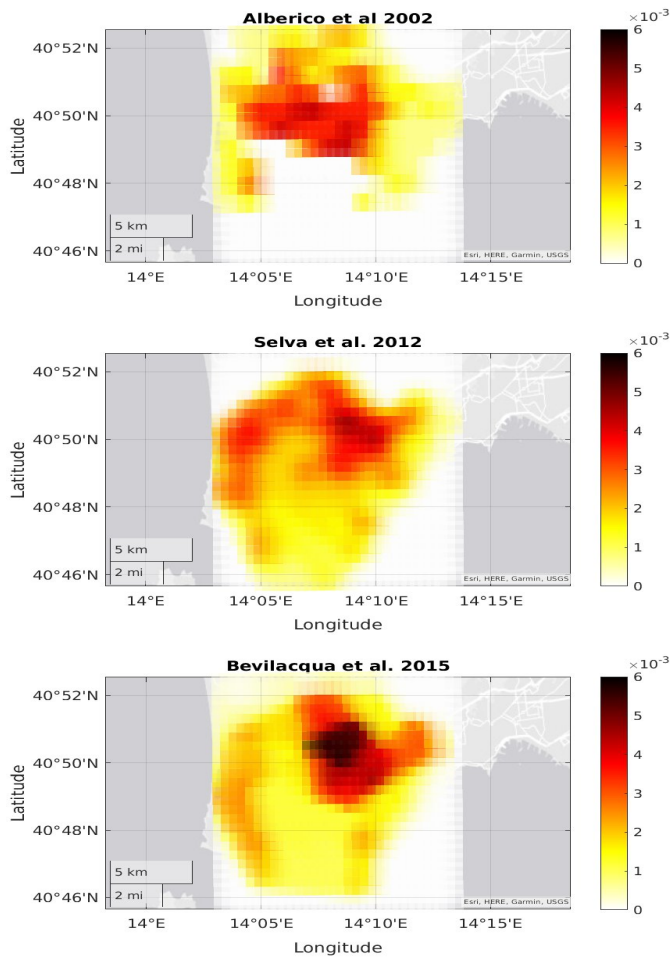
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36 **Supplementary Figure 6** - Results of the leave-one-out technique with a Kullback-Leiber score to select the most appropriate  
37 band-width (Connor et al. 2019) for the distance from the center (left panel) and for the azimuth angle (right panel). The  
38 most appropriate bandwidth are found for a distance of 275 m and an azimuth of 17 degrees.



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40 **Supplementary Figure 7** - Rescaled vent probability maps for Alberico et al. (2002), Selva et al. (2012) and Bevilacqua et al. (2015).  
 41 The scale is the same in the three figures. Maps were scaled to facilitate the comparison with the maps produced here. To this end, the  
 42 probability values of both Alberico et al. (2002), the one relative to VEI3, with a finer spatial definition of 1 km) and of Bevilacqua et al.  
 43 (2015, with a spatial definition of 250 m) have been re-integrated in M1/M2 grid, which coincides with the one of Selva et al. (2012) For  
 44 both Bevilacqua et al. (2015) and Selva et al. (2012), we considered the average maps for epistemic uncertainty. The area covered by  
 45 Alberico et al. (2002) is further extended toward the north, and those values are not reported here.