

Electronic Supplement to

The InSight Blind Test: an Opportunity to Bring a Research Dataset into Teaching Programs

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This electronic supplement presents documents provided to students, an example of a pedagogical activity proposed to students, and an example of an epicenter location during the training phase. Figure S1 shows the approach to estimate an epicenter location with the picking of Rayleigh waves. This figure was published in Roques et al. (2016). Figure S2 shows records from “Do It Yourself” accelerometers and the educational RISSC interface. These records were carried out to introduce the azimuth of the first ground motion. Figure S3 shows the comparison of the first students’ location (closing the training phase) and the correct location from the blind test solution. Figure S4 shows a compilation of each catalog provided by challengers, including the school catalog. Figure S5 is a patchwork of pictures from the analysis phase.

Figures

[Figure S1](#). Introduction to Rayleigh waves and their detection in seismograms (From Roques et al., 2016). a) Geometry between a virtual surface source (S) and virtual stations (G) spanning a great circle with a 20° interval on Mars. (b) Synthetic seismograms at each station (from Bozdağ et al., 2017). Green dashed line: hodochron of P waves. Red dashed line: hodochron of S waves. Dark brown dashed line: first arrival time of the Rayleigh waves at each station (R1). Medium brown dashed line: second arrival time of the Rayleigh waves at each station (R2). Brown dashed line: third arrival time of Rayleigh waves at each station (R3). Students were able to observe the variation of time decay of each Rayleigh wave arrival time, relative to the epicentral distance.

[Figure S2](#). Records from an experiment carried out with “Do It Yourself” accelerometers and the educational RISSC interface used in the classroom. Accelerometers were fixed on a table. Upper records: records of waves from an impact in the plane of the table and in direction X of the device. (b) Lower records: records of waves from an impact in the plane of the table and in direction Y of the device. For each case, the amplitude scale is the same for the three components. X and Y are horizontal components. Z is the vertical component. Yellow arrows: direction of the impacts.

[Figure S3](#). First epicenter location estimated by students during the training phase (the event occurred on September 22, 2019). The background map comes from EduCarte software (Mars version). SEIS (blue dot): location of the seismometer assumed for the blind test. Black circle centered on SEIS: first drawing of possible epicenter locations. Its radius is equal to 35.5°, value of the epicentral distance computed from arrival times of Rayleigh waves at SEIS. Note that the value displayed (35°) is a rounded value displayed by EduCarte. Yellow dot: students’ epicenter location. This location comes from the determination of the azimuth with the rotate

tool of SeisGram2K80_ECOLE.jar and from the reading of the first P wave polarity on the vertical component (determination of the back-azimuth). White dot: correct location.

[Figure S4](#). Catalogs from School and scientist teams, compiled in Van Driel et al (2019). a) Summary of team performances. Schools identified more than a hundred events, and seventeen of these were correct detections. The students reported that it was very fulfilling for them to see their work included among results from scientist teams, and to see that they succeeded in detecting some events. b) Overview of the school catalog indicating correct detections.

[Figure S5](#). Pictures of students during and after the challenge. a) Analysis in time and frequency domain of the daily disturbances due to thermal agitation at the surface. b) Students in charge of the analysis on July 2019. c) Talk carried out by students during an official seminar at the Géoazur laboratory.

References

Roques A., J.L. Berenguer, and E. Bozdağ (2016). A single geophone to locate seismic events on Mars. EGU General Assembly 2016, held 17-22 April, 2016 in Vienna Austria, id. EPSC2016-5313.