



Quality control with component ratios : 20 years of GEOSCOPE data

Helle Pedersen (1), Dimitri Zigone (2), Nicolas Leroy (3), and Martin Vallée (3)

(1) Univ. Grenoble Alpes, Univ. Savoie Mont Blanc, CNRS, IRD, IFSTTAR, ISTERre, 38000 Grenoble, France, (2) Institut de Physique du Globe de Strasbourg; UMR 7516, Université de Strasbourg/EOST, CNRS, Strasbourg, France, (3) Institut de Physique du Globe de Paris, Sorbonne Paris Cité, Université Paris Diderot, CNRS, France

Network operators are constantly trying to improve their tools of data quality monitoring. One particular set of quality issues are related to instrument problems or response errors. While major problems can be detected using power spectral densities (or power density functions), the variability in energy is such that it is difficult to detect small instrument errors. Other methods are available such as for example comparison with collocated or nearby sensors or analyzing very long period data from major earthquakes or tides. We here present a very simple method to detect instrument problems in the frequency range 0.01 – 4 Hz. It is based on median daily values of the Energy ratios of components, calculated in small time windows. We apply the method on 20 years of data from GEOSCOPE, and detect several hitherto unknown instrument problems, which can not be detected easily by standard PSDs. Field interventions that result in change of instrument behavior or updated instrument response are identified. The time resolution is one day. The method should be easy to implement in any monitoring software.