ID: **O3.4-850**   Type: **Oral**

Data Reliability in Nuclear Monitoring: The Characteristic Curve Method for Reducing Daily Variations

The Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO) continuously seeks innovative methods to enhance the accuracy and reliability of its monitoring systems. This study introduces the Characteristic Curve Method, a novel approach designed to mitigate daily variations in observatory data, which pose significant challenges in the analysis and interpretation of seismic and nuclear monitoring datasets. By systematically analyzing and modeling the underlying patterns of daily variations, this method provides a robust framework for stabilizing observatory data. Preliminary results demonstrate a marked reduction in daily variation, leading to improved consistency and precision in data collected from monitoring stations. The technique utilizes characteristic curves to predict and correct daily fluctuations, enhancing the signal-to-noise ratio and facilitating more accurate event detection and characterization. We present a comprehensive examination of the Characteristic Curve Method's effectiveness across various case studies and observatory settings, highlighting its potential to improve the reliability of data used in global security and compliance monitoring. This presentation will detail the methodology, discuss its advantages over traditional approaches, and outline future applications in CTBT monitoring efforts. This method can also be beneficial in Integrating different data into the database for further studies and comparative investigations.

E-mail

beyranvand@iiees.ac.ir

Primary author: POURBEYRANVAND, Shahrokh (International Institute of Earthquake Engineering and Seismology (IIEES))

Presenter: POURBEYRANVAND, Shahrokh (International Institute of Earthquake Engineering and Seismology (IIEES))

Session Classification: O3.4 Integrating Data from Different Technologies

Track Classification: Theme 3. Monitoring and On-Site Inspection Technologies and Techniques: T3.4 Integrating Data from Different Monitoring Technologies