

Dr. Hong Yu

Department of Industrial Technology

Smartphones, Grounds, Satellites, UAVs for Earthquake Nowcast

Abstract

Smartphones augmented with smart sensors together with ground geological survey stations, and Satellites (communication Iridium) system can easily generate billion bytes in vector time series. Despite of lacking of the synchronization, all data sources have generated from the earth molten core of the size of the moon. The constantly thermal neutrons decay of iron isotopes generates an enormous nonlinear underground thermal Bernard convection. This gigantic convection force is measured at 5th ~9th powers of the Richter scale. These gravitational and nuclear energy become the necessary and sufficient conditions of the Earthquake Calamities happened pseudo-periodically over decades at any mantle cracks and falls whether in the continental drifts, tectonic plates, or dynamic cooking pot theories. Since digital memory becomes recently dirt cheap, it is possible to design big databases analyses (BDA) based on Matrix Associative Memory from thousands vector times series for all the mobile phone users at local cellular tower. The consistent data will be piece-wisely send from a tower to another to the USGS data center where fusion is possible with USGS local seismic stations and with NASA satellite gravity data. The novelty detection will Nowcast for the early warning of the imminent Earthquake. Synchronically, the disaster area without any human or equipment will be surveyed by μ -UAV. It can help us to verify the convergence of Nowcast as well as to increase the reliability to protect the infrastructure and save the life.