ID: Type: **Poster**

A Prototype of a Waveform and Radionuclide Data-Fusion Tool

A tool that shows connectivity between waveform events and radionuclide detections has been developed. CTBTO's mission is to monitor compliance with the CTBT and to provide a set of independent data to the States Signatories to assist them in fulfilling their CTBT verification task. For this purpose, CTBTO operates networks of sensors to detect waveform signals and subsequently localize the epicenters of waveform events. Because the evidence of the nuclear character of a waveform event can only be provided by the radionuclide technology, a skillful fusion between detections made by the radionuclide network and waveform events has a potential of providing valuable information to the States Signatories. In achieving a fusion of information from radionuclide and waveform monitoring technologies, atmospheric transport modeling (ATM) plays a key role. ATM allows limiting the number of waveform events which are potentially sources of detected radionuclides by restricting attention to those which fall within a region indicated by the ATM. For 2012 this helps to reduce the number of waveform events which are potentially sources of radionuclides from 16439 to 341. To assist national-experts in their analysis, we have developed tools producing a daily updated waveform-radionuclide interactive connectivity table and a geographical visualizer.

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Track Classification: Theme 3: Advances in Sensors, Networks and Processing