AESA SUPPORTS GEOPHYSICAL MONITORING NETWORK

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Joseph Dagdigian, Harvard MA, 22 March 2016

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(L-R) Figure 1: Hovhannes Mardirossian , President, Armenian Engineers and Scientists of America, New York-New Jersey Section on Aragats, near outdoor particle detectors observing huge particle fluxes from the thunderclouds.

Figure 2: Winter on Mt. Aragats at Cosmic Ray Division research station, opening door of experimental hall. Facilities are also interconnected via underground passages.

Figure 3: Monitoring equipment on the roof of MAKET building on Aragats research station 3200 m above sea level. DEVIS automotive weather station; BOLTEC company electric mill EFM-100 and lightning detector LD250. Each minute data from Aragats on near-surface electric field disturbances, Lightning occurrences around and inside Armenia and 30 meteorological parameters are saved to CRD databases and are displayed in multivariate data visualization platform for scientific community and all who are interested in climate change.

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The growing influence of various dynamic processes in the atmosphere and the Earth's magnetosphere on human civilization is becoming more and more noteworthy. This is due, among other reasons, to the steady increase in frequency and severity of climate anomalies and extreme weather events.

The comprehensive monitoring and prediction of potentially dangerous processes in both atmosphere and the Earth's magnetic field is important for evaluating risk in various areas of the economy. It will help ensure the safety of existing and emerging complex technical facilities (including nuclear), the destruction of which will have a catastrophic impact and lasting effect on the environment and on living conditions.

The monitoring and prediction of potentially hazardous processes in the atmosphere are essential for military defense systems, including management and control networks, the functioning of communication and other electronic equipment, power systems, and the planning and implementation of military intelligence and tactical operations.

Armenia's research priorities in the field of climate and atmospheric physics include:

• Building a network of high-tech sensors and monitoring systems for the main geophysical parameters
• Ensuring continuous operation of the network and forwarding data in real time to database servers
• The establishment of systems for data transfer and storage, together with tools for multidimensional visualization and statistical analysis.

Geophysical investigations at the global level will increase the scientific and technological potential of Armenia in accordance with the priorities of Armenian scientists, and will lay the grounds for awareness and readiness to respond to unprecedented challenges of 21st century.

The Michigan and California chapters of the A.E.S.A. have been vitally instrumental in supporting the activities of the Cosmic Ray Division of the Yerevan Physics Institute.