



## **Utilization of the LADAS model within Emergency Response Systems in Korea**

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The Lagrangian Atmospheric Dose Assessment System (LADAS) is an atmospheric transport and dispersion model (ATDM) which has been developed at the Korea Atomic Energy Research Institute (KAERI) for the purpose of predicting and assessing atmospheric dispersion of radionuclides released into the air by a nuclear accident. During past several years, the LADAS model has been applied to the environmental impact assessment for the Fukushima Daiichi nuclear disaster and the tracking of North Korea's nuclear tests. Currently, it plays an important role as a primary ATDM of the Radiological Accident Preparedness System in Korea (RAPS-K) operated by the KAERI. Recently, we have developed a Volcanic Ash Transport and Dispersion Model (VATDM) called LADAS-Volcanic Ash (LADAS-VA) based on the LADAS-regional model. The LADAS-VA model is chosen as a one of VATDMs with the FALL3D and PUFF models which are utilized within the Volcanic Disaster Response System against volcanic eruption around Korea now under construction by the ministry of the interior and safety of Korean government. Operation of these emergency response systems is partly supported by the Korea Meteorological Administration (KMA) with providing the real-time Numerical Weather Prediction (NWP) data. The LADAS and LADAS-VA models are optimized for fast (initial assessment) calculation to support decision-making of immediate countermeasures when an emergency situation occurs. Early stage environmental impact and damage prediction are estimated base on the result of this calculation. Here we present how the LADAS and LADAS-VA models are utilized within emergency response systems in Korea.