



Cities on Volcanoes 9
November 20-25, 2016
Puerto Varas, Chile

'Understanding volcanoes and society: the key for risk mitigation'



Operational Science Needs of the International Airways Volcano Watch

Andrew Tupper¹

¹Bureau of Meteorology, Australia

The 2010 Eyjafjallajökull and 2011 Cordón Caulle eruptions particularly highlighted the economic costs and safety risks of volcanic ash clouds to aviation, and also stimulated much international discussion into volcanic ash management. In response, the International Civil Aviation Organization (ICAO) convened a large 'International Volcanic Ash Task Force' process, and, the World Meteorological Organization (WMO) and International Union of Geodesy and Geophysics (IUGG) jointly created an advisory panel, the Volcanic Ash Science Advisory Group, to advise ICAO on volcanic ash matters. The resultant discussions may be of considerable interest to volcano observatories. Aviation users ideally need 1) pre-eruption information, including eruption forecasting and a good understanding of the likely behaviour of a volcano, 2) rapid notification of eruption onset, 3) as much information as possible towards constructing a realistic eruption clouds 'source term' for modelling of ash and (increasingly of interest) toxic gas dispersion, and 4) a tight operational relationship between volcanological, meteorological, and aviation agencies. The scientific and operational challenges of these needs are non-trivial. In support of building an international monitoring network, ICAO has, amongst other things, placed a requirement on countries with active volcanoes to instrumentally monitor those volcanoes, also opening the possibility of some sustainable aviation sourced funding for those countries where arrangements for cost-recovery for State Volcano Observatories are agreed. As the International Airways Volcano Watch grows in sophistication (for example, in seeking to quantify volcanic ash and gas concentrations and integrate arrangements further with ground-based hazard management), it would be expected that the requirements for close operational relationships, and the related opportunities, will further increase.