Forecasting Re-Suspended Ash Events
Re-suspended volcanic ash over Kodiak Island, Alaska
(Credit: Jeff Schmaltz, MODIS Rapid Response Team, NASA/GSFC. Image taken September 21, 2003.)
VAAC Processes for Re-Suspended Ash

• Existing large areas of ash are known to re-suspend in certain conditions. VAACs are able to be alert during these times.

• Reports of re-suspended ash treated the same as any other report of ash.

• A mention of the ash source can be placed in the Eruption Details or RMK sections of the VAA.

• MWO obliged by Annex 3 to use the word “eruption” in the VA SIGMET. Tokyo VAAC addressing this in MOG meeting.

• London VAAC provides daily forecasts of possible re-suspension of ash from Eyjafjallajokull & Grimsvotn to the Iceland MWO.
Forecasting Re-Suspension Events

• What do we need to know to model this re-suspension?
  • Good knowledge of the ash source area, including terrain
  • Knowledge of how the ash is mobilised under different wind and moisture conditions – require a “threshold friction velocity” at which dust grains are mobilised (function of grain diameter, grain density, surface roughness, soil moisture and vegetation cover).

• If the ash already re-suspended, modelling needs to be based on the areal extent of observed ash, as well as base and height.

• Not all VAACs have this modelling capability.
Suggestions

• Treat re-suspended ash as any other – if it is “discernible” (or expected to be if no cloud cover), then issue a VAA.

• Use Eruption Details to indicate re-suspension – elaborate in RMK field if necessary.

- For known “at risk” ash fields, be aware of meteorological conditions that can mobilize the ash.

- Implement “polygon initialisation” dispersion modelling

- Consider daily dispersion model runs for particularly high risk areas (as for Icelandic volcanoes).