

Department of Electrical & Computer Engineering

Airborne Sampling/Sensing of Distal Volcanic Ash

Project Group Meeting #1

Minutes

**Minutes of the weekly meeting 18 March 2016**

**Present:**

Maan Alkaisi, Adrian Weller, Jamie Van de Laar, Jake Campbell, Parth Thakur, Ryan Taylor, Mike Shanaher

**1. Apologies:**

* NIL

**2. Minutes from last meeting**

* NIL

**3. Matters arising**

* NIL

**4. Correspondence**

* NIL

**5. Progress Reports:**

* Jamie Van de Laar

Reported research. Few papers on UAV specific sampling methods. Likely have to design our own

* Jake Campbell

Proposed project on making own particle size distribution sensor as part of computer vision course

* Mike Shanaher

Presented density (ash loading per unit volume) research. Particle size distribution most important. Nephelometer and aethalometer are two optical devices worth looking into.

* Parth Thakur

SO2 and CO2 sensors are chip sized and cheap. Recognised that they may not be useful in distal VA.

* Ryan Taylor

Looked into sensor controller. Arduino may be best: low cost, plenty of support.

6. **Other business:**

* Project Proposal
  + Overall good
  + Suggest not using SO2/CO sensors
  + Focus on ash/not ash first
* VA particle size range
  + Adrian referred to an Icelandic paper that suggested less than 50 micrometer particle sizes are expected. We should investigate a range of sources to determine range which will dictate sensor selection
* Ash samples
  + The DTA have kilograms of ash samples. They will be sent down within the next couple of weeks to allow bench testing of equipment
  + AC test dust can be used also
* Resources available
  + NIWA platform may be available for inspection
  + DTA can provide autopilot - however, will likely use off-the-shelf system
  + DTA can provide advice on telemetry
  + NIWA can provide advice on operating electronics within the high altitude environment
  + DTA can provide balloons and launches
  + Thomas Wilson at UC may be able to provide info in volcanic ash

**Meeting ACTION LIST**

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| --- | --- | --- |
| **ACTION** | **ASSIGNED TO** | **DUE DATE** |
| Conduct further research and decide on sensors to order | All students | Order early April |
| Send volcanic ash | Adrian | Two weeks time |
| Contact Dr Thomas Wilson | Maan/Students | Mar 15 |

**Next meeting date: Friday 01 March**