















Department of Electrical & Computer Engineering

Airborne Sampling/Sensing of Distal Volcanic Ash

Project Group Meeting #8

Minutes

**Minutes of the meeting PGM #8 20th May 2016, VH 457**

**Present:**

Maan Alkaisi, Jamie Van de Laar, Ryan Taylor, Michael Shanaher, Parth Thakur, Adrian Weller (Skype)

**1. Apologies:**

Jake Campbell

**2. Minutes from Meeting #7**

Confirmed as a true and accurate record.

**3. Matters arising**

Contacted Sam from NIWA regarding the source for the cheaper particle sensors that they have used.

Order for OPC-N2 and USB adapter placed.

**4. Correspondence**

All group members CC’d in relevant email correspondence throughout the week.

No other forms of relevant correspondence.

**5. Progress Reports:**

* **Ryan**

Update on sampling system design

* To use carbon tape to collect sample placed at some angle to the air flow through an internal tube in the nose. Air deflected out side or bottom/top of air frame.
* Angle of deflection and operation at -70 degC important consideration
* **Jamie**

Static ash test chamber discussed. Agreed that acrylic would be less than ideal due to cost and electrostatic properties. A glass fish tank could be cheaper, however, MDF could prove to be the cheapest material that would enable easy rework. We identified the need for a coating that would enable easy cleaning.

* **Parth**

Talked about electrostatic sensors:

* + Confirmed that DIY approach is only viable option due to power requirements of off-the-shelf designs
  + Identified possibility of using conductive paint as electrodes on wings
  + DTA could provide advice on analog electronics and sensor design
* **Jake**
* No progress to report as Jake was away.
* **Mike**

Progress on telemetry/air frame

* + Meeting with Kelvin Barnsdale
  + Have use of RC transmitter & receiver
  + Have use of telemetry set
  + 433MHz antennas ordered
  + Confirmed airspeed sensor to be ordered by DTA. DTA identified difficulty in making small orders. Mike suggested that the airspeed sensor order be delayed until he determines which long range telemetry equipment to order. DTA suggested that we do not wait that long and decided to go head and order the digital airspeed sensor.

6. **Other business:**

Adrian raised discussion on use of the DTA wind tunnel. Likely to be expensive to ship but perhaps DTA can send only the fan and fan controller section. In any case, if we were to build our own here at UC then their design could be copied.

Adrian suggested that the cheaper sensors could be used as the final solution if proven suitable. The OPC-N2 could be used as the gold standard/benchmark for testing and calibrating them.

Daniel Ashman introduced to the group as another source of information/advice that can be contacted directly for specific needs as required.

**Meeting #8 ACTION LIST**

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| --- | --- | --- |
| **ACTION** | **ASSIGNED TO** | **DUE DATE** |
| Contact Chris Hann (wind tunnel supervisor at UC) | Jamie | Asap |
| Investigate cost of sending wind tunnel | Adrian | Asap |
| Investigate purchase of carbon tape | Ryan | When needed |
| Power up and initial configuration of air frame | Mike | Next week |
| Contact Dr Thomas Wilson RE: ash testing rig/ash advice | Adrian | Asap |
| Order Airspeed sensor | Adrian | Not urgent |

**Next meeting date: Friday 27th May 2016**