

Department of Electrical & Computer Engineering

Airborne Sampling/Sensing of Distal Volcanic Ash

Project Group Meeting #7

Agenda

Date: Friday May 13th 2016

Time: 3pm

Venue: VH 462

Chair: Ryan Taylor

Secretary: Jamie Van de Laar

1. Apologies

NIL

2. Minutes

(Attached)

3. Matters arising

* Confirmation of BOM for DTA
* Number and mass of samples required

4. Correspondence

NIL

5. Progress Reports:

* Ryan – Ash sample capture, plane ash chamber
* Mike – Telemetry, Pixhawk autopilot
* Jamie – Ash test chamber
* Jake – Modelling
* Parth – Electrostatic sensor

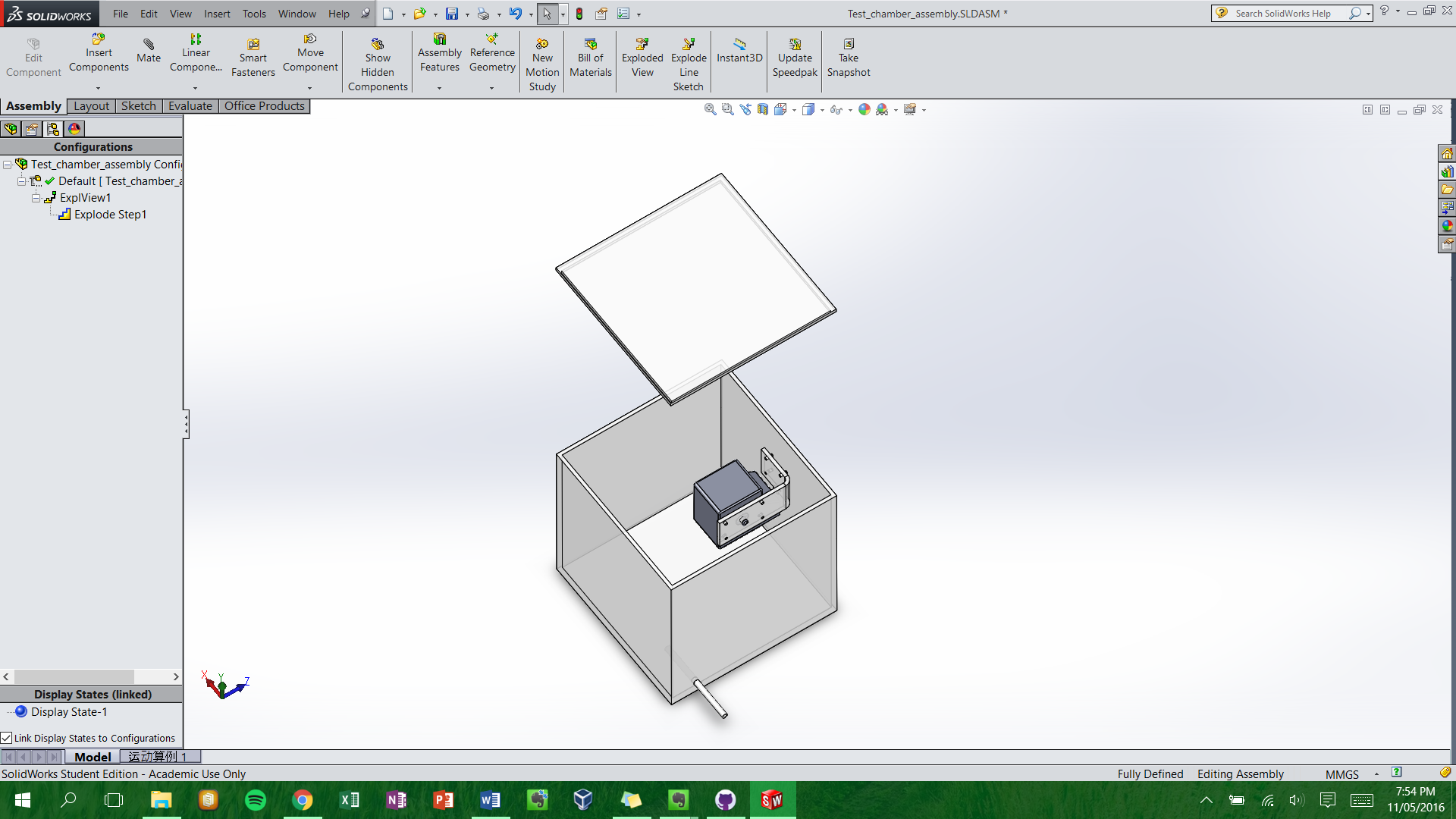
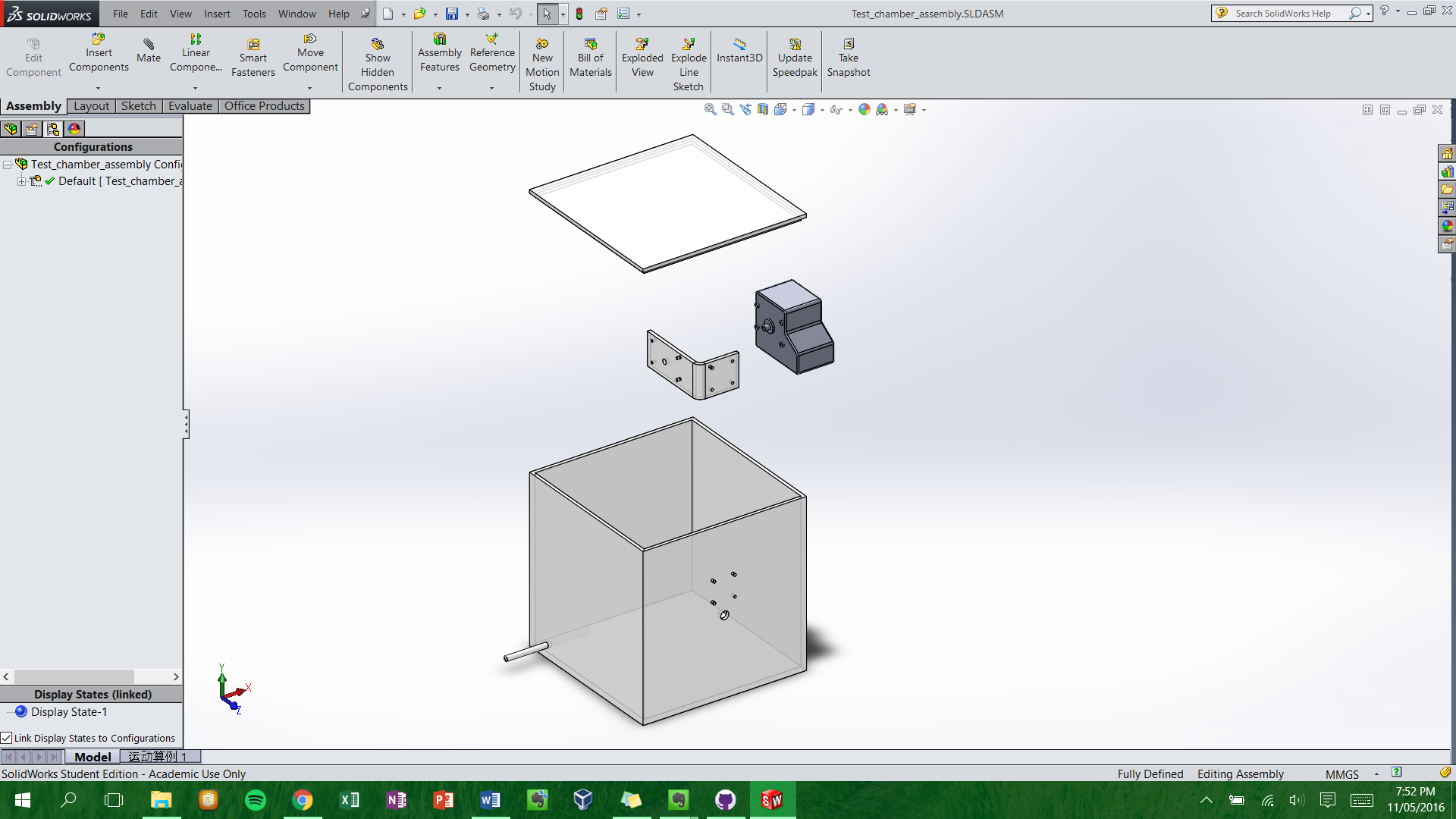
6. Other business:

* Next meeting – 20th May?

# Attachments:

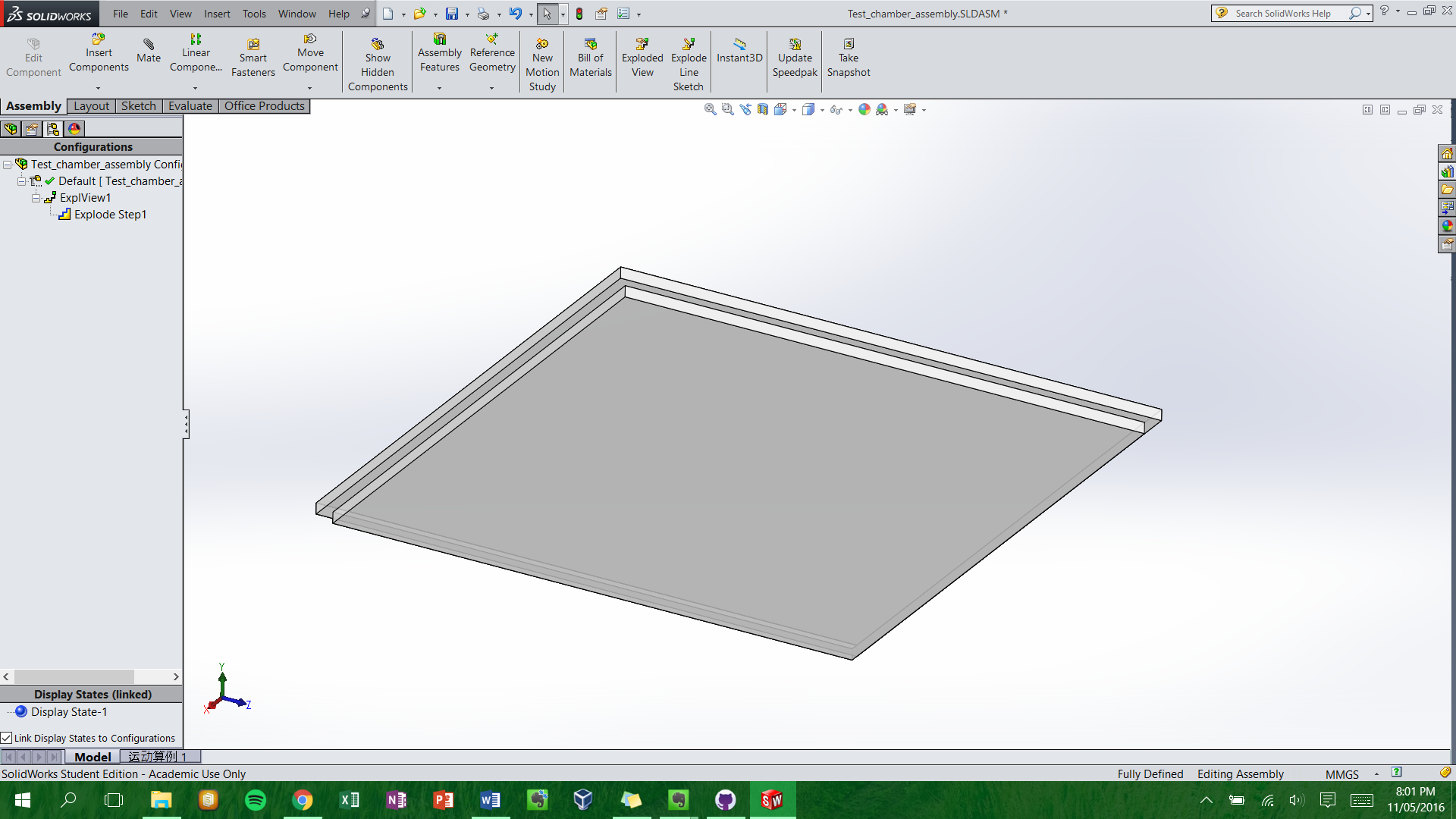
**Ash chamber concept:**

**Exploded view** **Lid off**



Small tube is for blowing nitrogen gas through to agitate ash. Bigger hole in top left picture is for sensor wires.

**Lid**



Minutes from Meeting on May 6th 2016

All present.

Mike, briefed Adrian on meeting Kelvin.

Adrian, can get help regarding Pixhawk and flight telemetry.

Jake, report on computer vision and concluded that his didn’t work and would recommend buying specialised sensor.

Jamie, stating that we can use Kelvins equipment. Radio gear, Pixhawk, etc.

And had the idea of sampling on the way up, following air currents.

Jake, a pending question about whether CAA will allow non powered glider.

Mike, sense and sample on the way up and down. Can have the option of different air flows on the way and down respectively for different sensors. Richard green mentioned a powerful computer to tell different way points, and had code to change waypoints for Pixhawk. Kelvin had software to add additional servo controls.

Ryan, Power of flying up was inconclusive and required airframe deemed too large. Popping of balloon in ash was discussed - past testing using a balloon in ash didn’t have a problem. Julian should be able to find us a battery of any size easily. Stating to the meeting that there is a testing area up to 1000 feet easily accessible.

Parth, electrostatic sensor. From his small experiment he had recorded a change in voltage after stimulating the ash.

Regarding a testing environment, first using basic test chamber, then secondly have a chamber with a fan. The group discuss the best way to experiment with a test chamber.

Adrian, the DTA can help with CFD modelling to do with inner ash chambers.

Maan, reiterating the pending progress report 2 weeks away. And he read an email stating the airframe was in Christchurch and just needed to be picked up.