HASP2012
UNF Payload
Monthly Status Report for May 2012

UNF Team

Faculty Advisor:
Dr. Nirmal Patel
Email: npatel@unf.edu
Phone: 904-620-1670
Cell: 904-200-2855

Students:

(i) Rebecca Polo

(ii) Ken Emanuel

(iii) Jason Saredy gone for training in US Army from 8th May to end of June 2012.

UNF team did the following work during May 2012:

(1) Parts for payload body were received. Fabrication work is under progress.

(2) New sensor PCB was not ordered during this month due to requirement of minor modification of dimension. It will be ordered in the next month.

(3) Fabrication of new series of sensors arrays is going on. Testing of sensors under different conditions such as concentration of ozone gas, interference, temperature and pressure is going on.

(4) Thermal aspects of payload are discussed below:

The payload body will be aluminum. There are no heat generated components in the circuit. Sensors have good stability in the operating temperature range from 10 to 45 ^{o}C. A Kapton (polyimide) flexible heater (Omega, KHLV-0502, 5 or 10 W/inch^2) and temperature sensor will be applied on the backside of sensors substrate. Heater and temperature will connected with the digital temperature control circuit. Temperature of sensors will be monitored and maintained constant in the temperature range 20-35 ^{o}C by the temperature controller circuit. Sensors, heater and temperature sensor will be housed in a small metal box. Sensors box will be attached to payload body from inside. There will be enough thermal insulation from sensor box to main microcontroller. The outer side of payload body will be wrapped by the two layers of thermal blanket. The thermal blanket will shield and protect the payload from heat generated by the solar radiation during the flight and outer cold temperature in the

Troposphere. We estimated that our payload will have sufficient thermal stability and insulation. It was observed in the last two balloon flights that temperature of sensors was maintained nearly constant during most of the flight time period. Please refer the following data of the last year flight HASP2011 for the temperature of sensors in payload with the altitude.

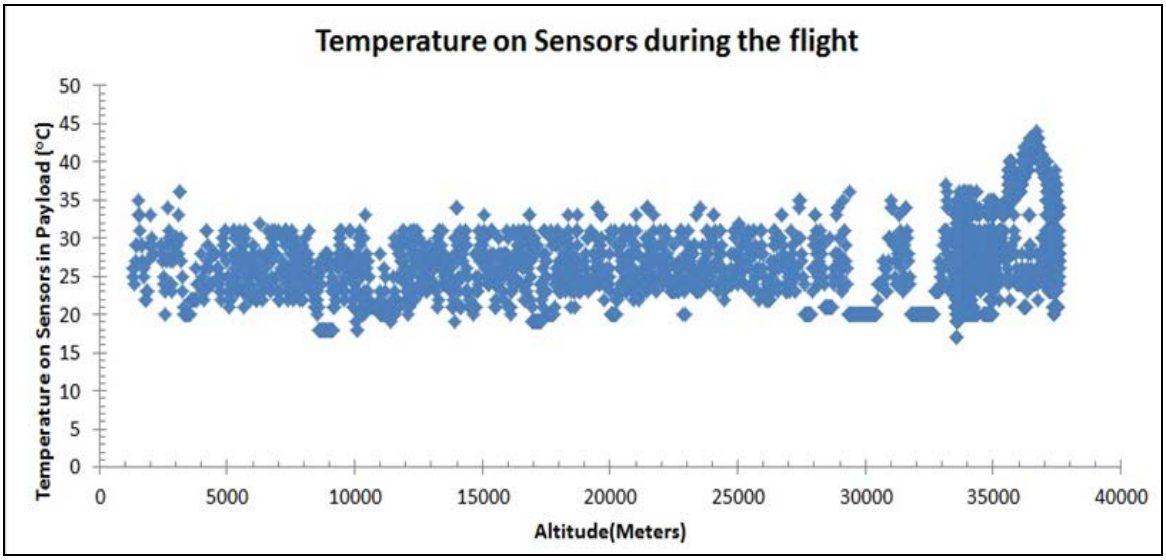

Fig.1 Temperature of sensors was controlled (20-35 degree C) by the temperature controller (HASP2011 flight)

We will examine all possibilities and impacts of thermal variation. The necessary precautions will be taken before integration at Palestine, TX.

UND Team

Faculty Advisor

Dr. Ron Fevig
Email: rfevig@aero.und.edu,
Phone: 701-777-2480

Students Leader:

Marissa Saad
Email: Marissa.saad@my.und.edu
Email: mrzhasaad@gmail.com
Cell: 617-462-0610

Consultant:

Jonathan Snarr
Email: Jonathan.snarr@und.edu
Email: wade@speedhut.com
Cell: 485-851-3572

1) The UND team conducted two High Altitude Balloon group meetings, before the students left for summer break.

2) The UND team held a videoconference with Dr. Patel on May 2nd to discuss the progress and status of the payload. Dr. Patel was able to show us in real-time what we usually discuss within email conversation.