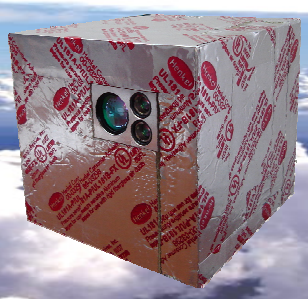
Innovative Dynamics, Inc.
Smart Systems for Transportation Safety

Under Development

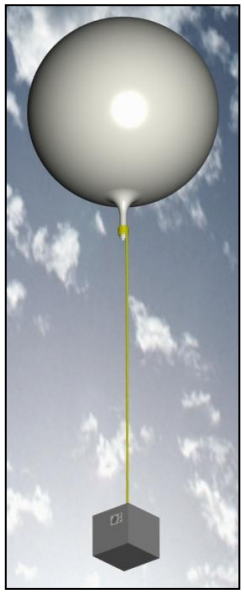
RCLASS

Radiosonde Cloud Assessment System



Features

- In-Situ Measurement of:
  - Liquid Water Content
  - Particle Size
  - Particle Density
  - Ice Content
- Balloon deployable
- Low weight
- Small Size
- Low Cost
- Low Power
- "All-Weather" Design
- Integrates with existing Radiosonde systems
- MATLAB Based data analysis tool



Overview

Innovative Dynamics Inc., under a NASA sponsored program, is developing a Radiosonde Cloud Assessment System (RCLASS) which measures the liquid water content, drop size, and phase of clouds. The innovation is a new capability for measuring cloud properties consisting of an optical probe flown on a weather balloon.

RCLASS is the first system of its kind. It is small, low weight, low cost, and because it is able to penetrate the surface of clouds, will provide essential information to forecasters previously not available from balloon launched or ground based systems.

This system will provide the atmospheric science community with real time data about the characteristics of clouds. In addition to enhanced weather forecasting, this data could be provided to the aircraft industry for the purpose of icing avoidance and general aviation safety. There currently exists a significant need for this type of data, but no effective or low-cost means to provide it. RCLASS will fill this void.

Operation

Low power infrared lasers illuminate the interior of the cloud and the resulting scattering is analyzed in real-time to determine cloud properties. Using serial communications, the cloud property data is saved to an on-board data logger and can be transmitted to a ground station via RF link.

Specifications

Dim:	8" x 8" x 8"
Weight:	2.3 LBS
Power input:	12 VDC
Max Power:	5 Watts
Oper. Temp.:	-60°F to 150°F
Sensitivity:	5 – 100 micron
	1 – 1000 parts/cm3
	0 – 100% ice content
Comm:	RS232, Ethernet
Safety:	Eye Safe Class 1 Laser
Diagnostics:	Start up BIT, One digital test signal input

Applications

- Enhanced Weather Forecasting
- Aircraft Icing Avoidance
- Meteorological Research

Output

- Mean Droplet Size
- Liquid Water Content
- Mean Droplet Density
- Ice Content

2560 North Triphammer Rd Ithaca NY 14850 • (607) 257-0533 • IDI@idiny.com • http://www.idiny.com