

Meadow Creek
Christian School



Jackson Middle School

NASA Remote Sensing In Minnesota

How Do Different Surfaces
Reflect and Absorb Solar
Energy?

Sunglasses in Winter?
The Truth Behind Blinding
Snow



A 3 Tiered Approach



- Ground truthing
- Aerial photography with NASA remote controlled plane
- Analysis of NASA satellite data



First We Studied the Snow



And We Measured the Temperature from Top to Bottom



We Measured with Probes



We Also Measured Light with a NASA - PAR Sensor



We Measured Water Content on the Surface and at the Bottom



We Measured the Amount of Absorption with an IR Meter



We Measured Incoming and Reflected Visible Light



We Looked at 4 Different Surfaces



Some Preliminary Results

- The old snow reflected about 50% of the incoming light
- Snow reflection was about 50% in both the open field and the woods
- The pavement and the ground reflected less light than the snow
- The pavement had the highest IR reading



We Learned How to Read Satellite Images



We had a Meteorologist in our class to show us the global picture



We Assembled the Plane



We learned about the payload on the RC plane



The Plane's Instruments

- Takes digital pictures every 5 seconds during flight
- Transmits digital video feed during flight
- Can switch between color and infra-red video during flight



We Took Ground Measurements at the Flight Site



We Flew The Mission Flight 2/28



We Downloaded Data from the Plane

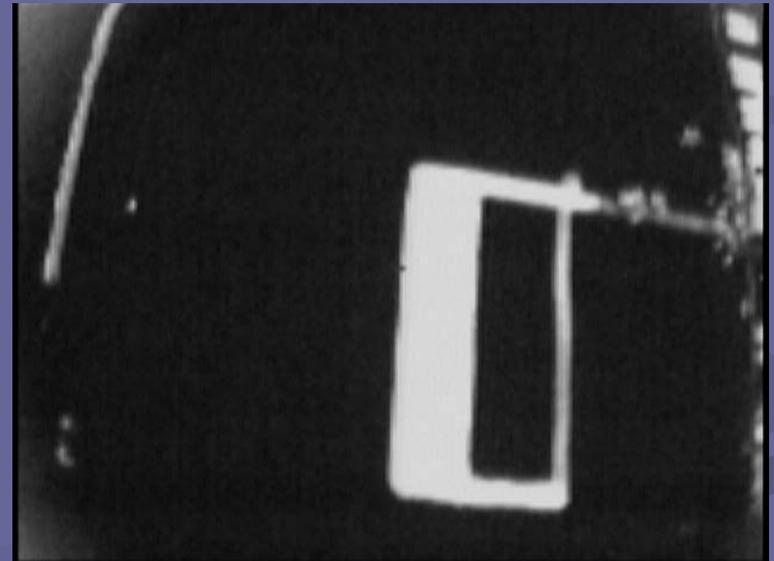
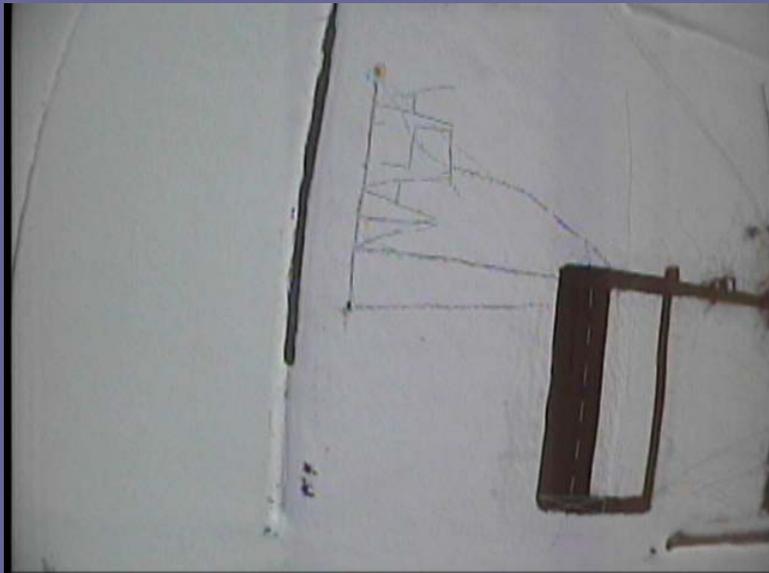


Celebrating a Successful Flight

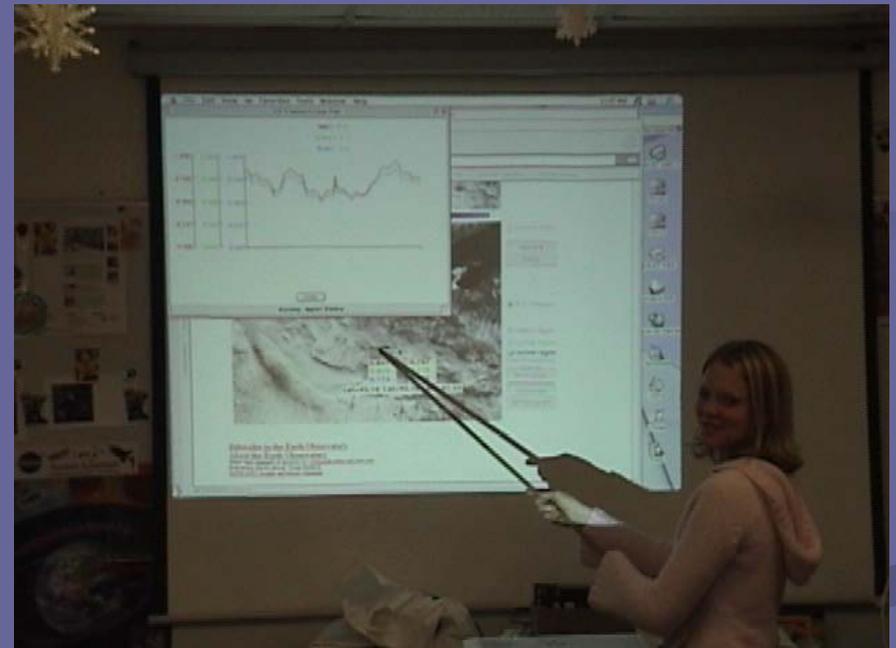


Finally We Analyze the Data

- We analyze satellite data near our flight time



We connect our ground measurements to the plane measurements and then to the satellite images by using GPS coordinates ...



Since we can do this...we could
work for NASA!!!!

