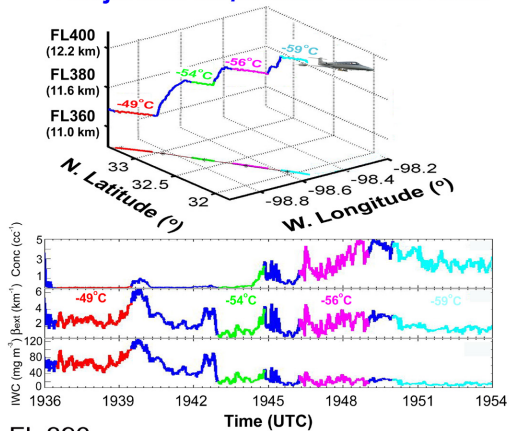


# Preliminary Results From the SPartICus Field Campaign

R. Paul Lawson<sup>1</sup>, Jay Mace<sup>2</sup>, Jennifer Comstock<sup>3</sup>, Ankita Chaturvedi<sup>1</sup>, Brad Baker<sup>1</sup>, Qixu Mo<sup>1</sup>, Eric Jensen<sup>4</sup>  
<sup>1</sup>SPEC Incorporated <sup>2</sup>University of Utah <sup>3</sup>Pacific Northwest National Laboratories <sup>4</sup>NASA Ames Research Center

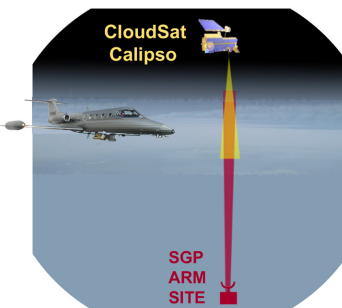
## Data from CloudSat Underpass South of Amarillo on 10 Feb 2010

### Learjet Stair-Steps Under Satellite Track



## Small Particles In Cirrus (SPartICus) Mission

Using Improved Optical Probes (e.g., 2D-S, Fast FSSP, CDP), Collect a Statistical (6-month) Dataset of In-situ Measurements of Mid-Latitude Cirrus in Conjunction with Remote Observations from the ARM SGP and Satellite (CloudSat-Calipso) Sensors



## New and Legacy Sensors are Installed on the SPEC Learjet Research Aircraft



## Preliminary Results

Contrary to Several Previous Results, New Measurements Show Expected Increase in Small Particle Concentration from Cloud Base to Cloud Top.

Bimodal Size Distributions are often observed Near Cloud Base

Average Small Ice Particle Concentration is Typically 10's to 100's per liter, but Ice Concentrations > 1 cc are Often Found at the Tops of Cold, Deep Cirrus Systems

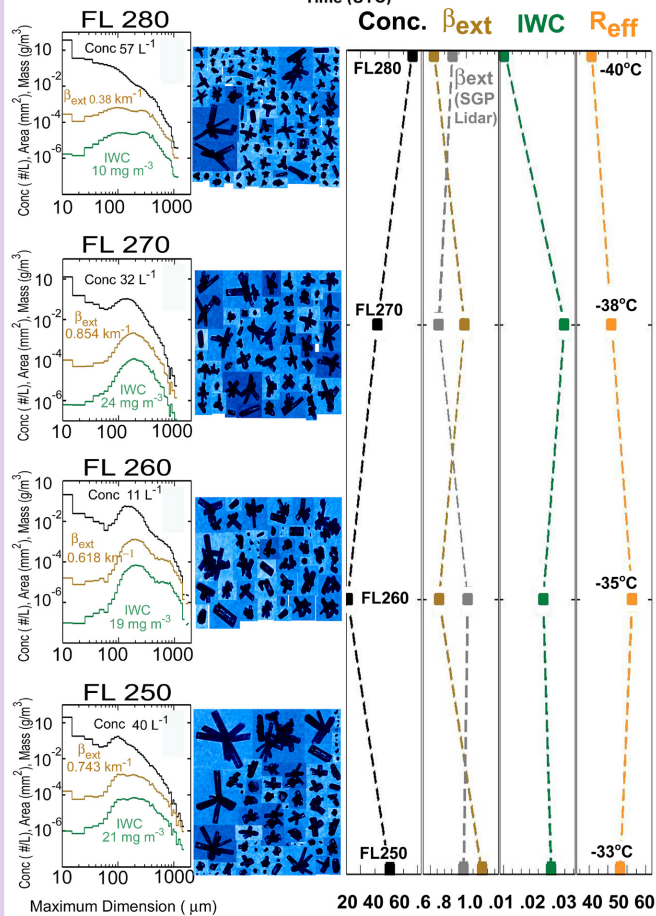
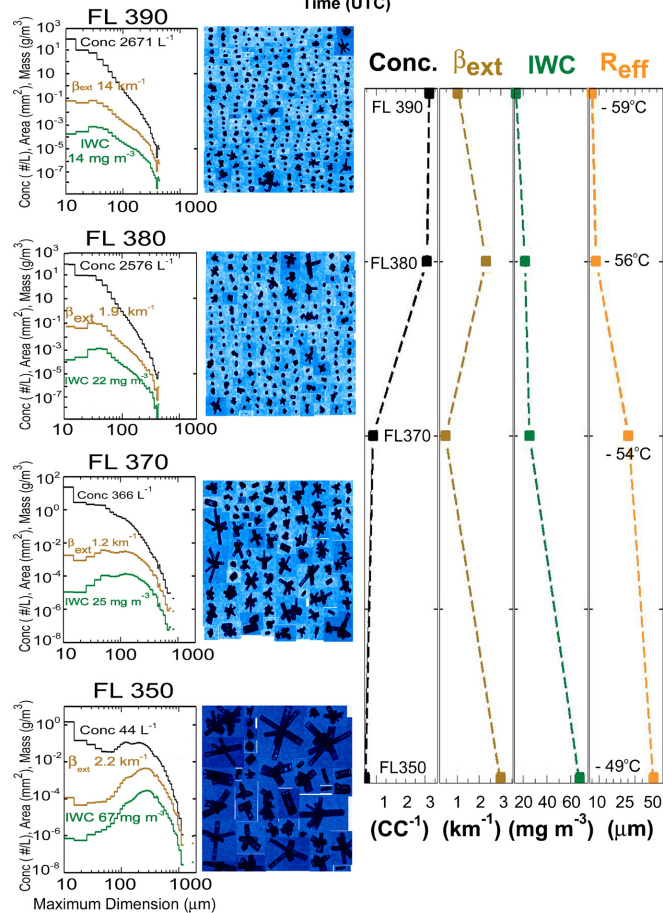
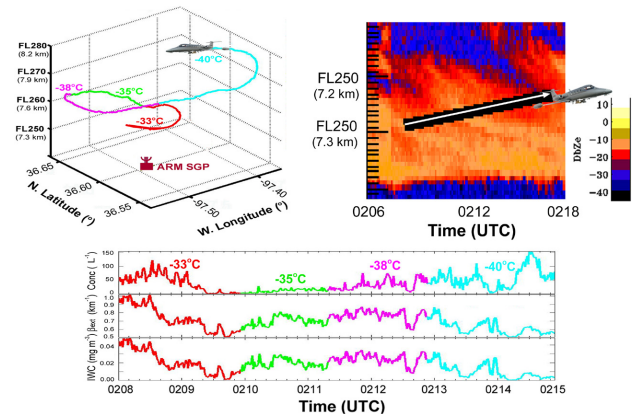
## Continued Research

Several Additional SPartICus Flights in Various Types of Cirrus are Needed in Order to Compile a Statistical Database.

## Acknowledgements

Dr. Beat Schmid and Jason Tomlinson of Pacific Northwest National Laboratories, Forecasting by Daniel Hartsock, SPEC Pilots Bill Harris, Harry Mertz and the SPartICus Science Team

## Data from Learjet Spiral, Raman Lidar and MMCR at ARM SGP Site on 27 Jan 2010



20 40 60 .6 .8 1.0 .01 .02 .03 40 50 60  
 ( L<sup>-1</sup>) ( km<sup>-1</sup>) ( mg m<sup>-3</sup>) ( μm)