



OMPS Optical Systems

April 24 2002



Phillip Spindler

- Technical Co-Op II
- Aeronautical & Astronautical Engineering

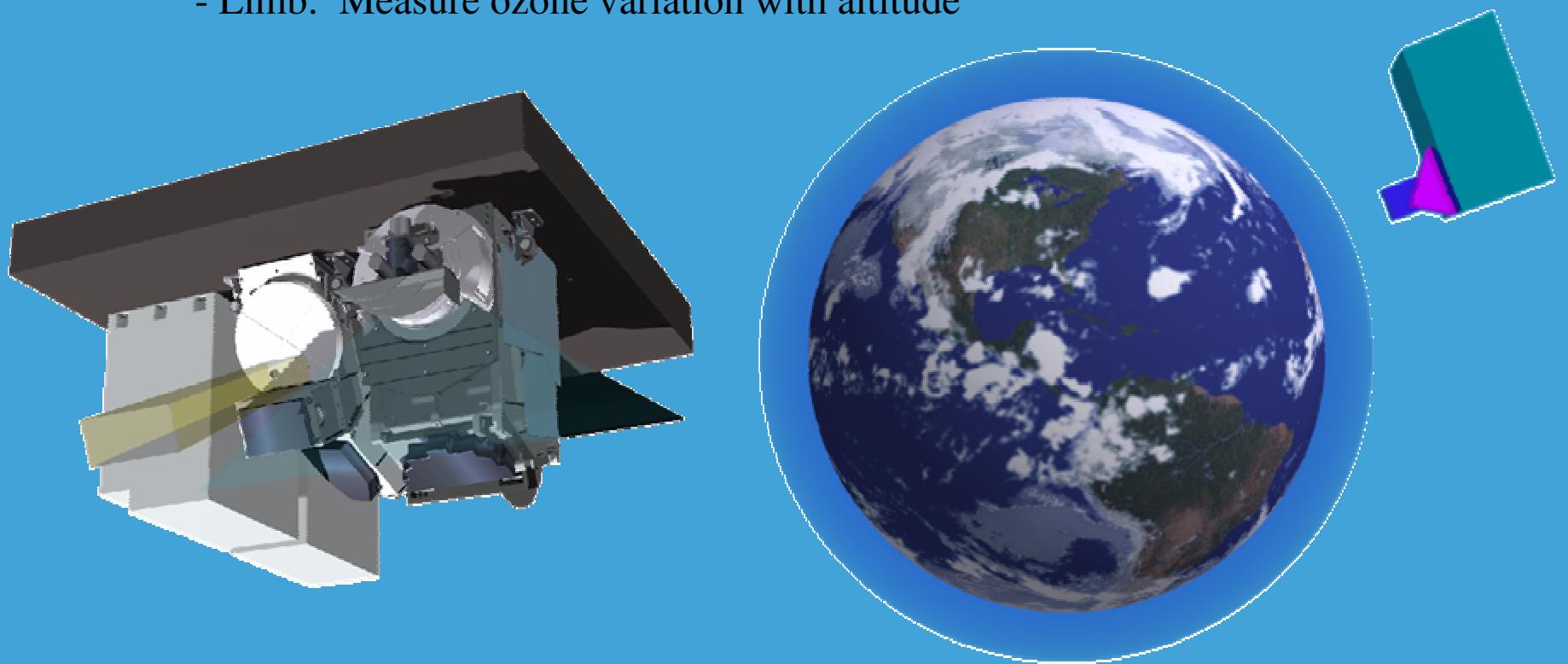




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Ozone Mapping & Profiler Suite

- Developed for the National Polar-Orbiting Operational Environmental Satellite System
- Consists of two instruments
 - Nadir: Measure amount of ozone in the atmosphere
 - Limb: Measure ozone variation with altitude



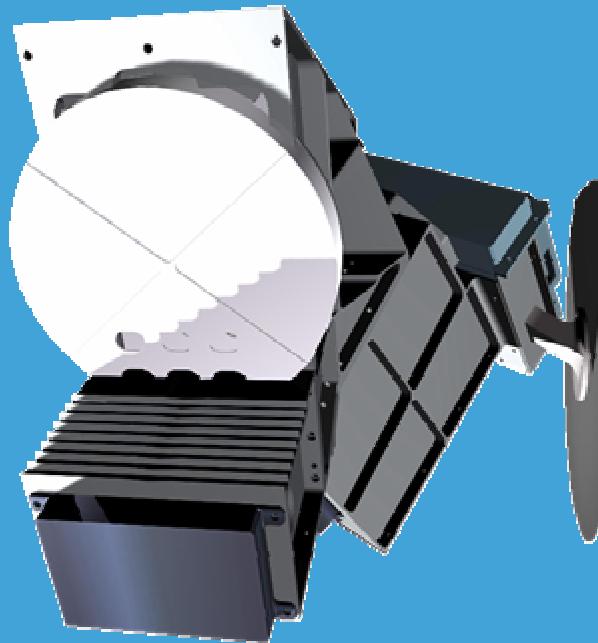


Limb Telescope Baffle

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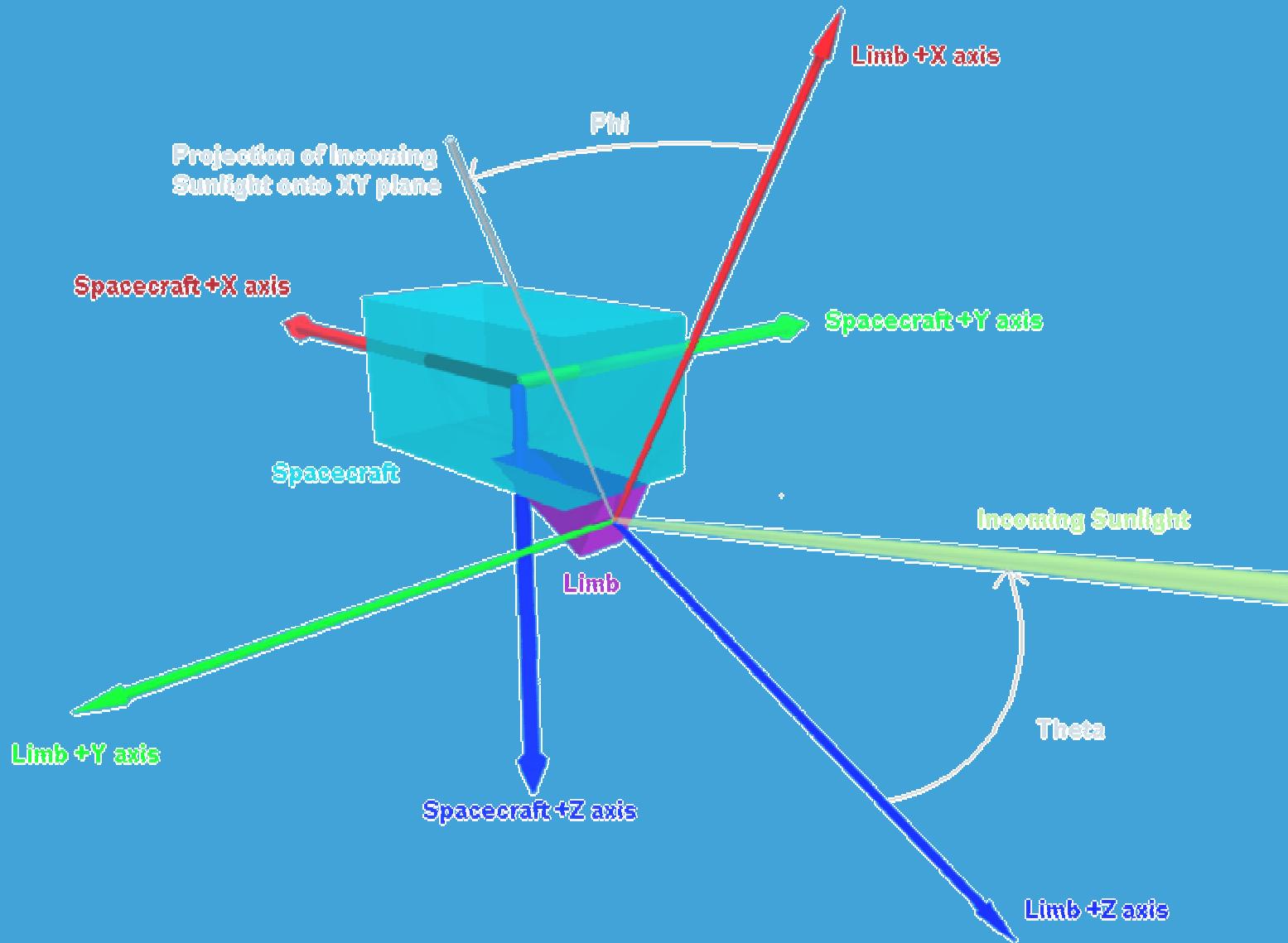
- Baffles are used to restrict stray light
- Obtain Incoming Solar Angle data from Satellite Tool Kit
- Use Matlab to analyze data
 - Filter shaded times
 - Convert to Limb reference frame
 - Plot results





Coordinate Conversion

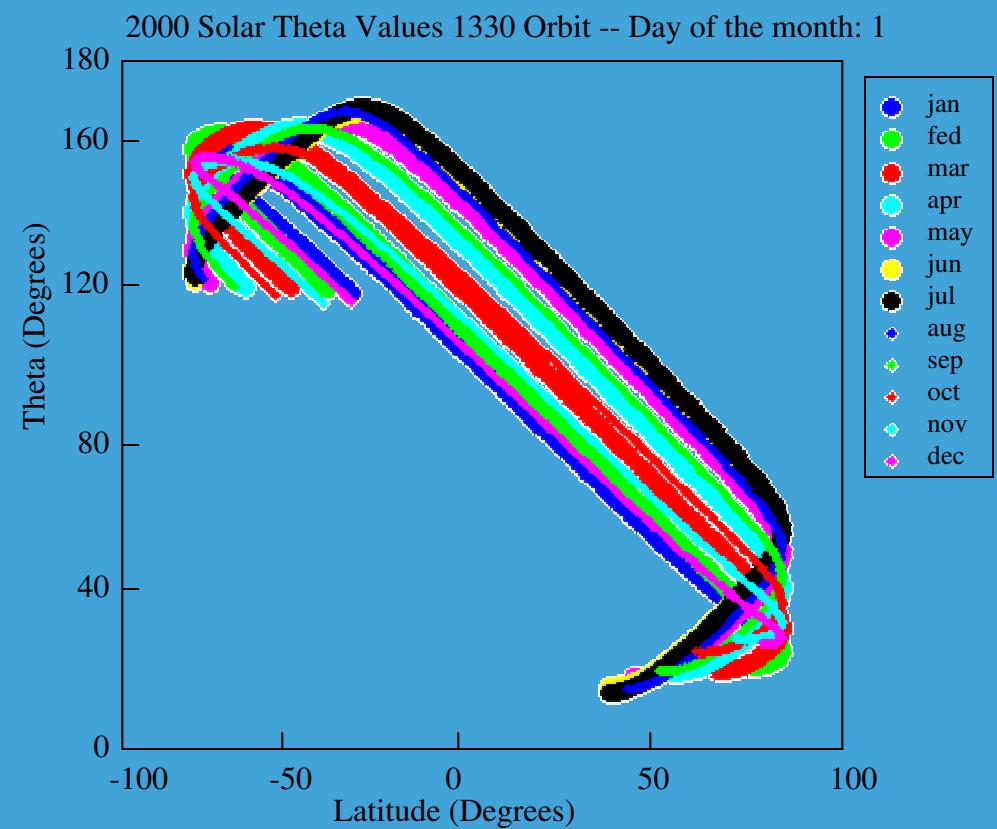
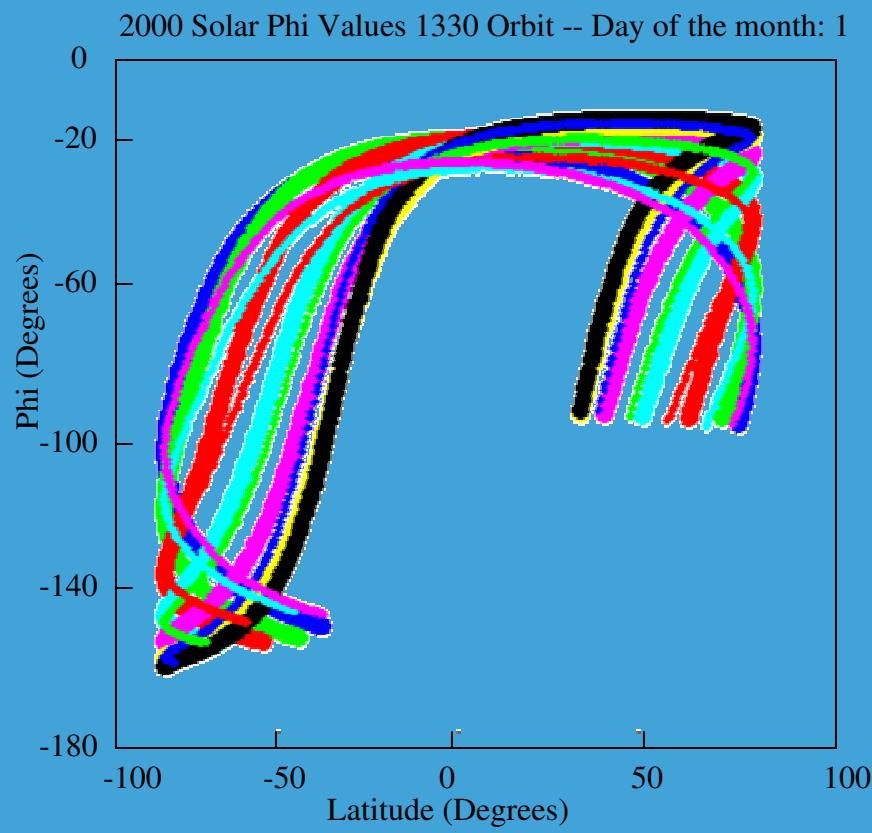
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Solar Phi & Theta Plots

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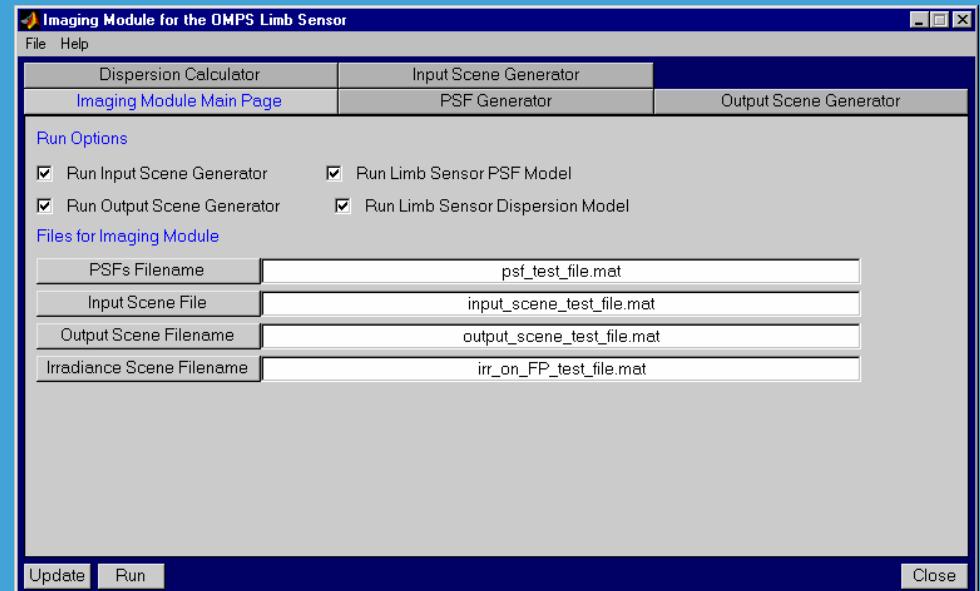
Limb End to End Model

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- Integrate Detector Module with Imaging Module

- Imaging Module simulates the optics
 - Input: Radiance from the atmospheric model
 - Output: Irradiance on the Focal Plane
- Detector Module simulates the CCD
 - Input: Irradiance on the Focal Plane
 - Output: Detector Counts or Electrons



- Radiometrically Verify the End to End Model
 - Compared two different models to check accuracy
 - Signal to Noise Ratio Model
 - End to End Model



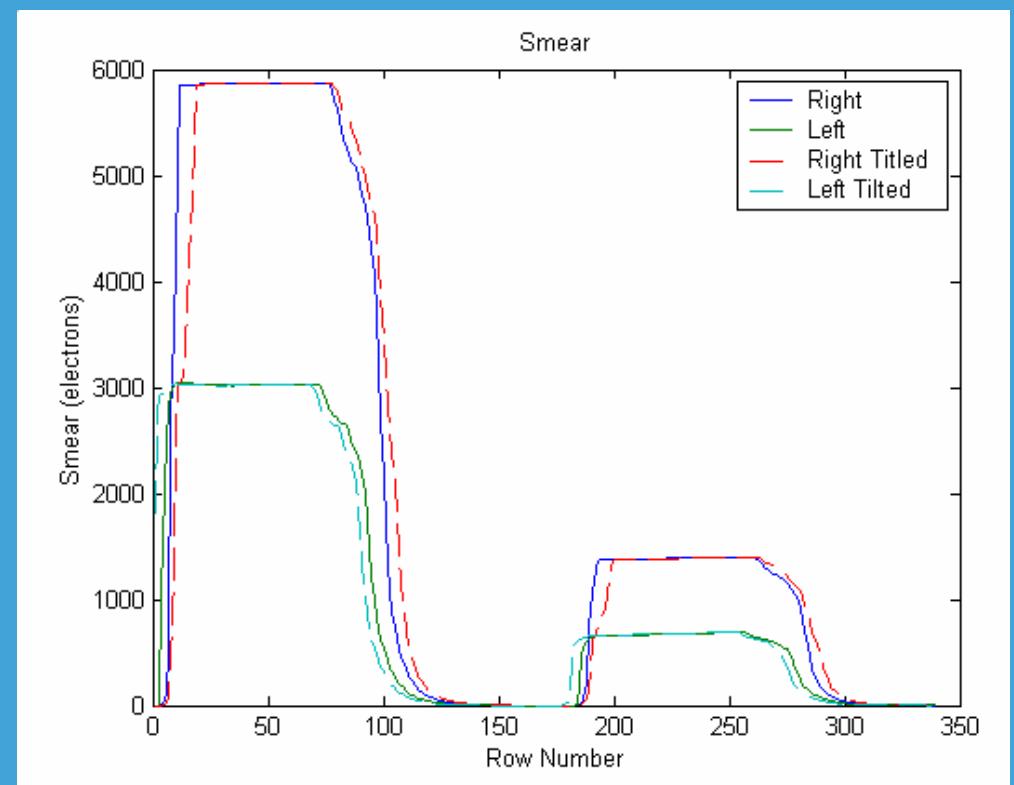
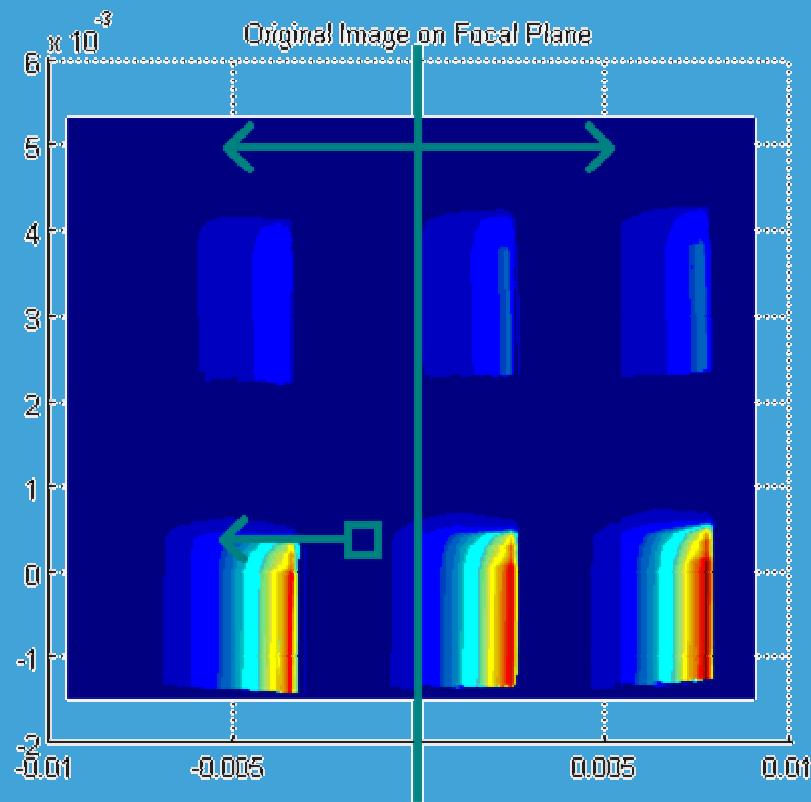
Smear (Tilted Image)

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Purpose: Find out optical alignment requirements

Smear is caused because the CCD does not have a shutter





Thanks



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Brian McComas

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Suzanne Delchamps

