

# Hyperion On-Orbit Calibration Validation with AVIRIS in Argentina

Rob Green, Tom Chrien, and Betina Pavri

Jet Propulsion Laboratory  
California Institute of Technology

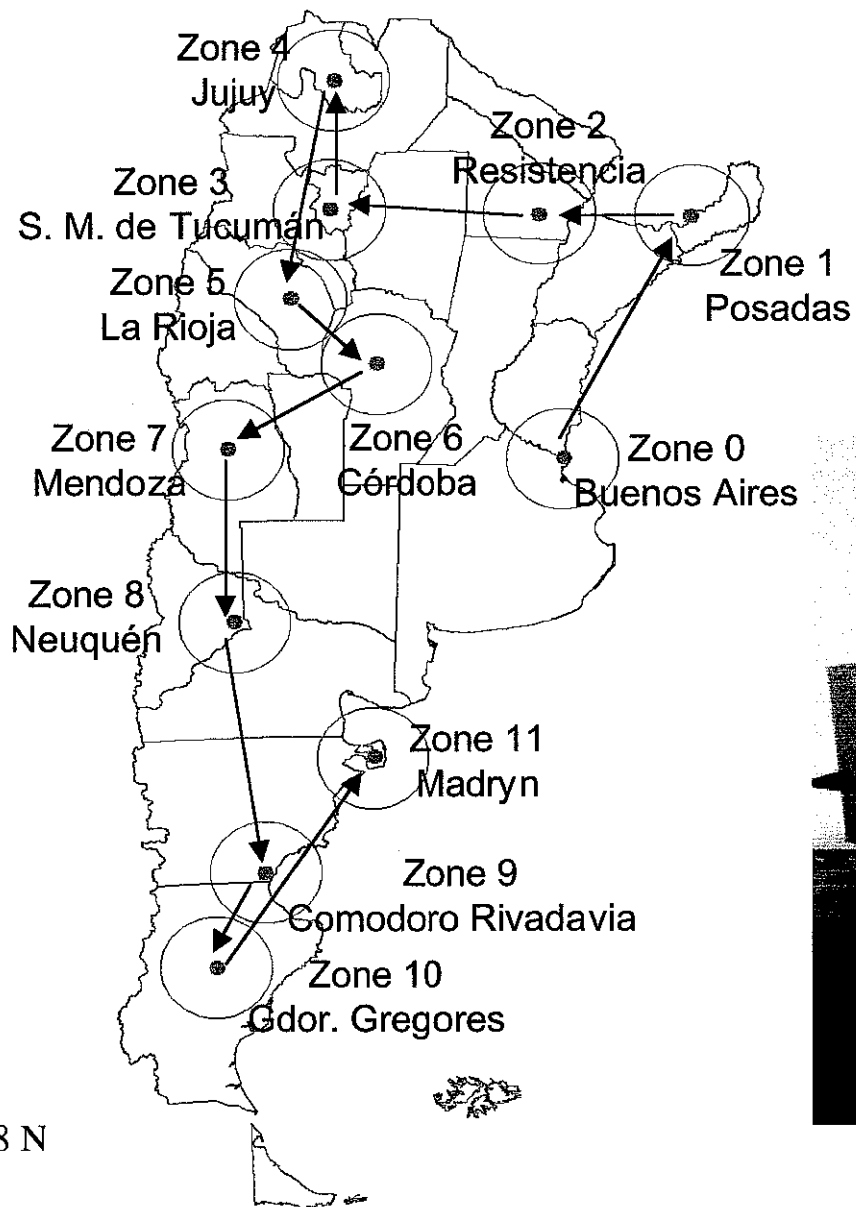
# Argentina 2001

- In September/October 2000 it was proposed that AVIRIS deploy to Argentina in January to support EO-1 with summer underflight and validation acquisitions.
- On the 30th of December 2000 the Twin Otter left Las Vegas headed for Buenos Aires at 140 knots
- On the 3rd of January 2001 AVIRIS was shipped to Buenos Aires
- On the 13th of January AVIRIS collected the first image in Argentina onboard the Twin Otter

# AVIRIS Argentina 2001

- AVIRIS began imaging on the 13 of January
- AVIRIS finished on the 20th of February
- AVIRIS flew 25 days and collected more than 125 flight lines
- More than 216 gigabytes of data
- Two simultaneous under flights of NM EO-1
- Two simultaneous under flights of SAC-C
- ~ 70 Calibrated/georectified data sets delivered to investigators to date

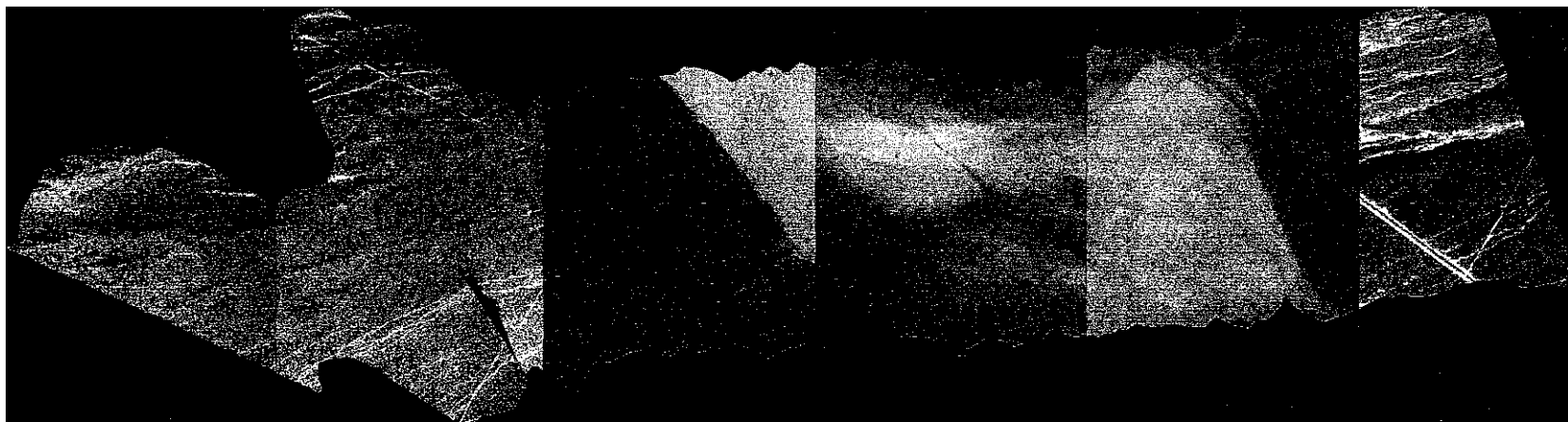
# AVIRIS 2001 Argentina Campaign



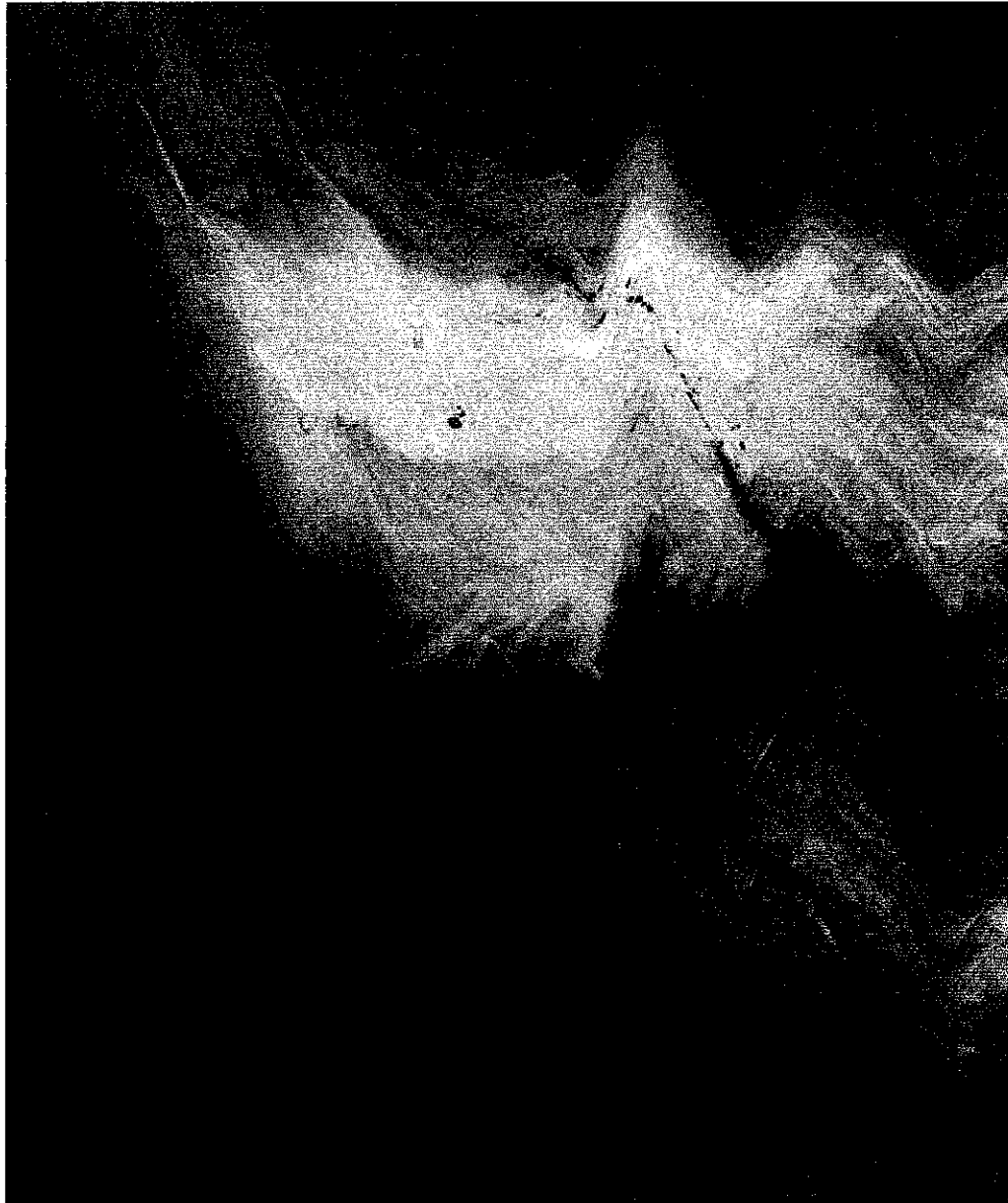
6-8 N



# AVIRIS Image Leoncito, Arg 010122

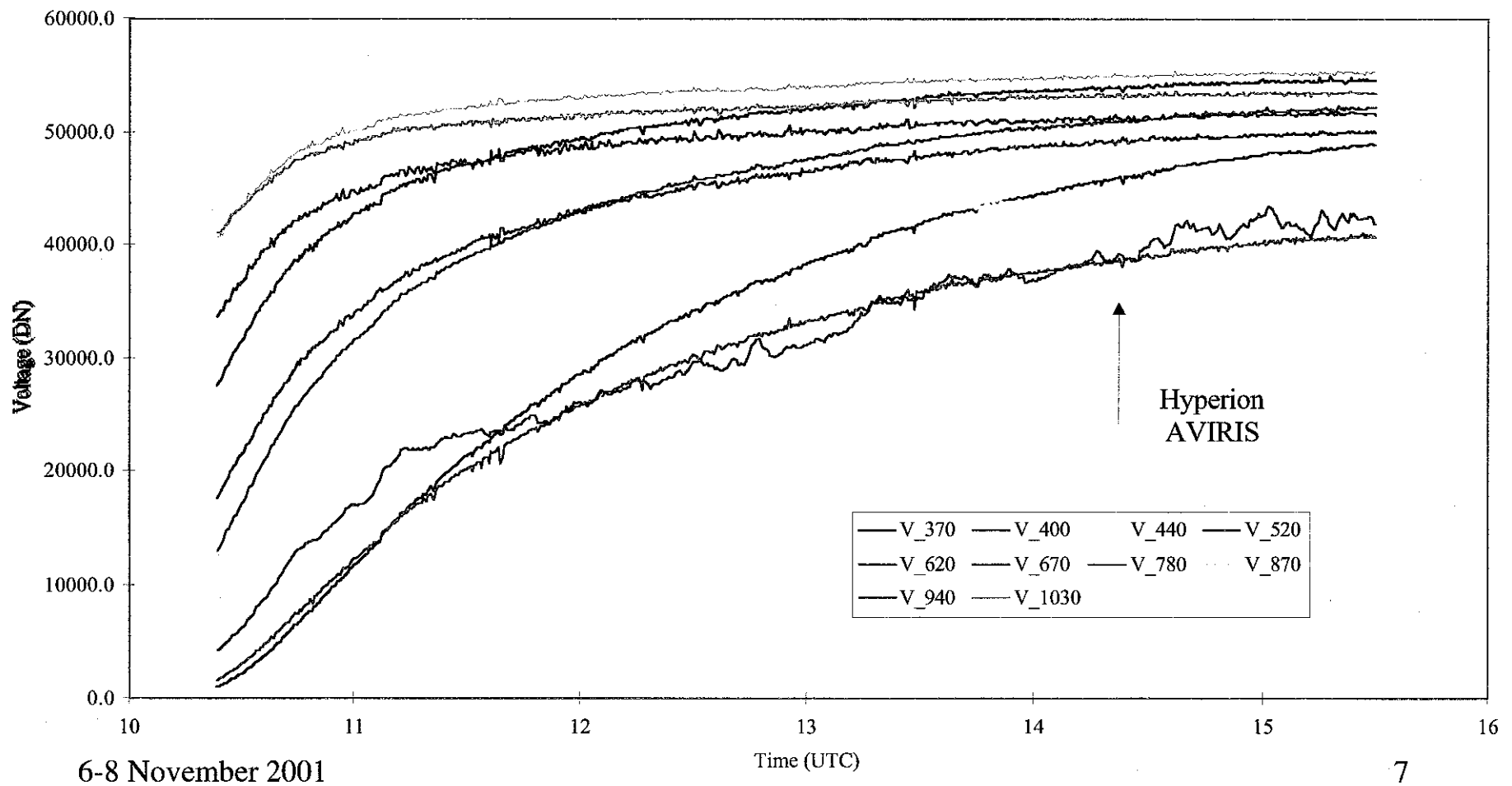


# AVIRIS Image Leoncito, Arg 010122



6-8 November 2001

# Optical Depth Measurements Leoncito, Argentina, 010122

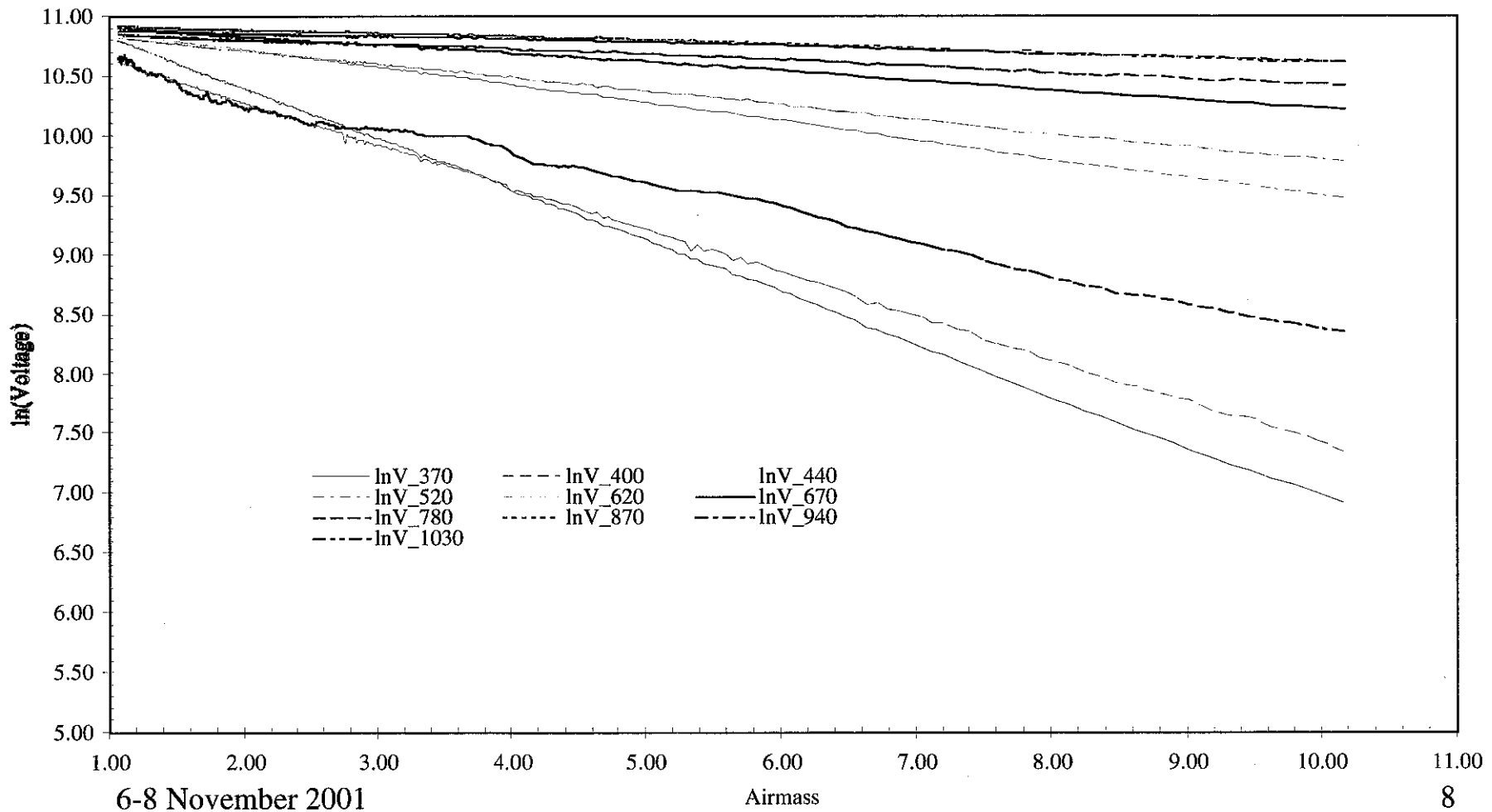


6-8 November 2001

Time (UTC)

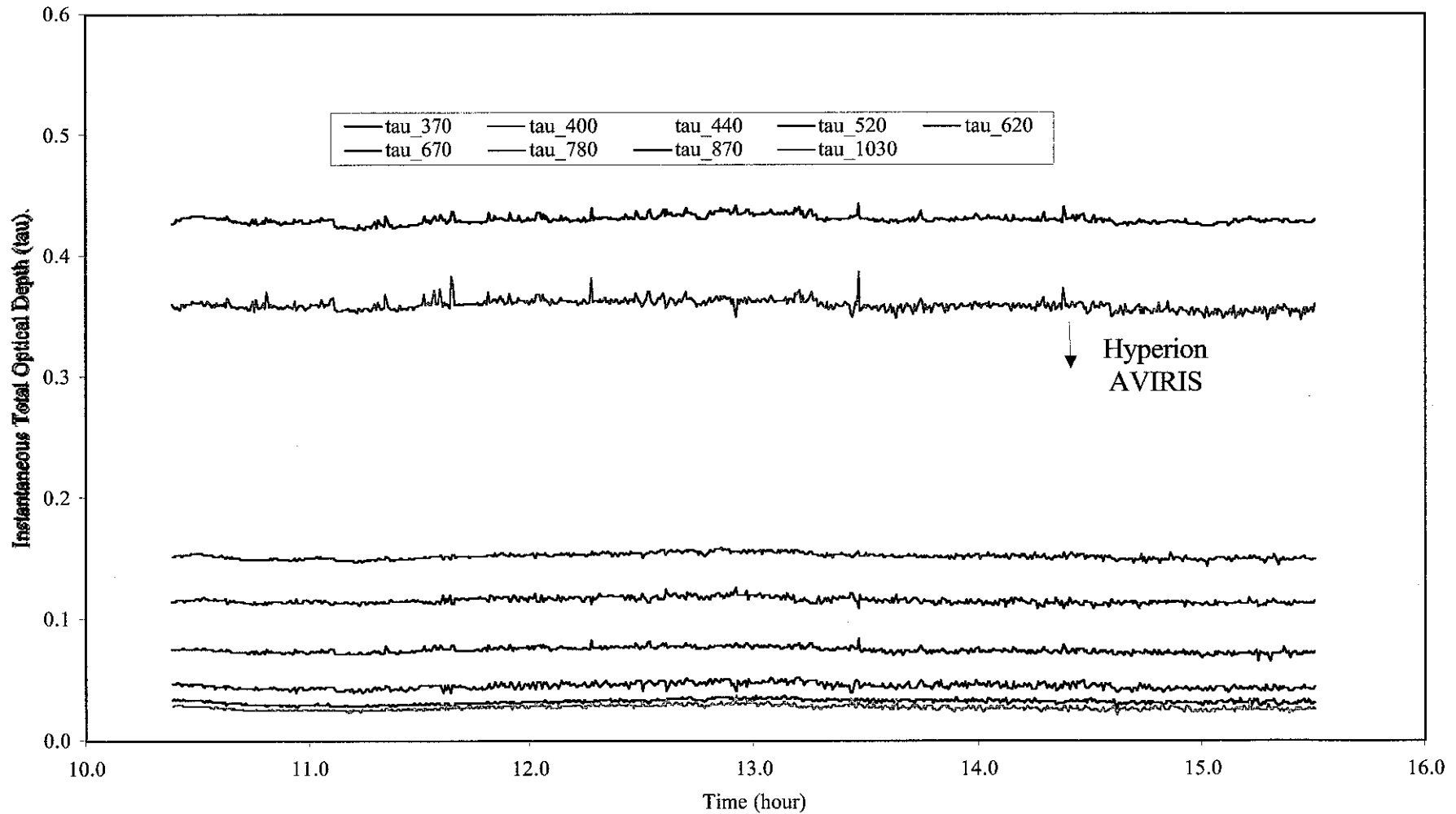
# Optical Depth Measurements Leoncito, Argentina, 010122

2





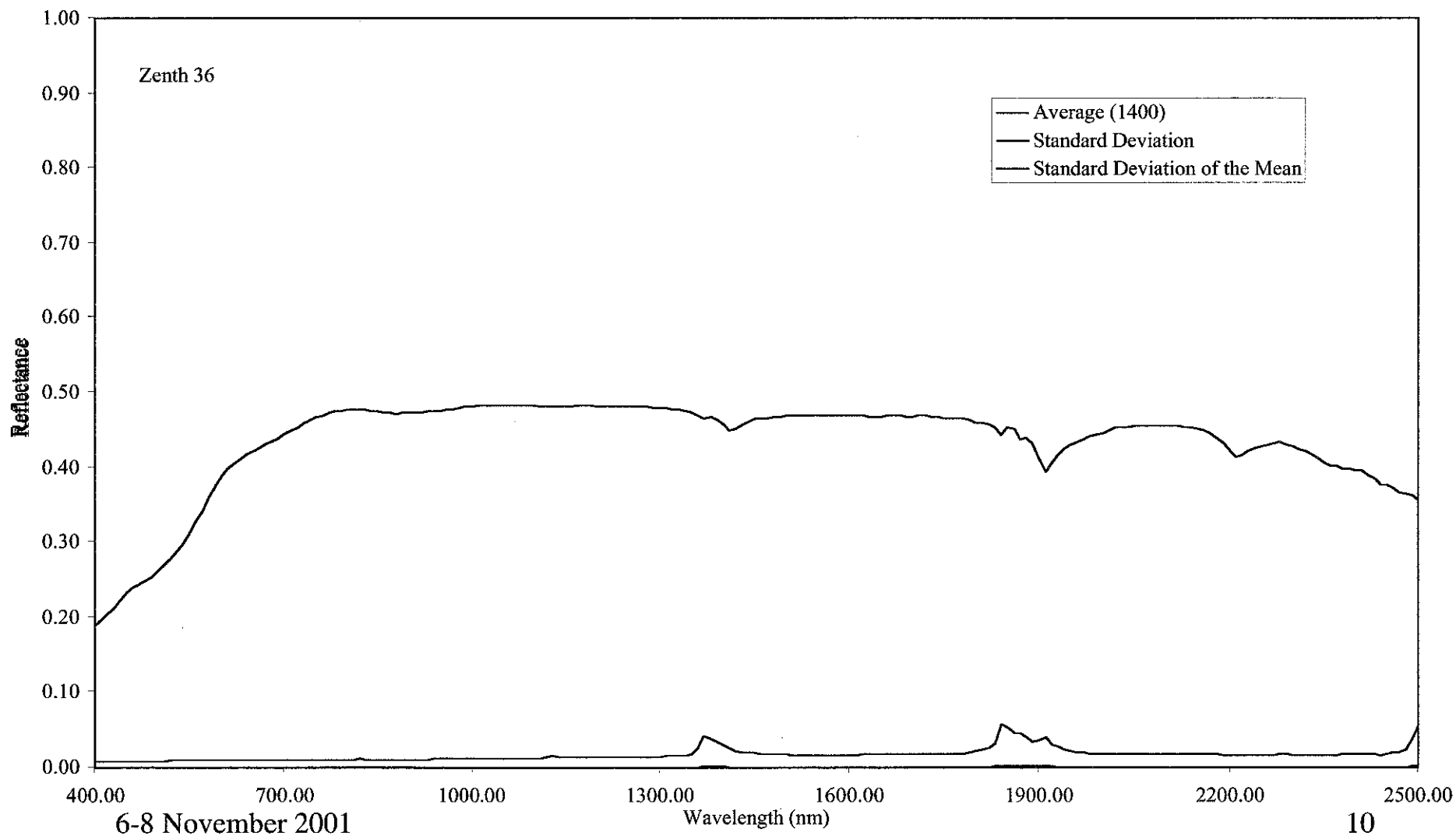
# Optical Depth Measurements Leoncito, Argentina, 010122



6-8 November 2001

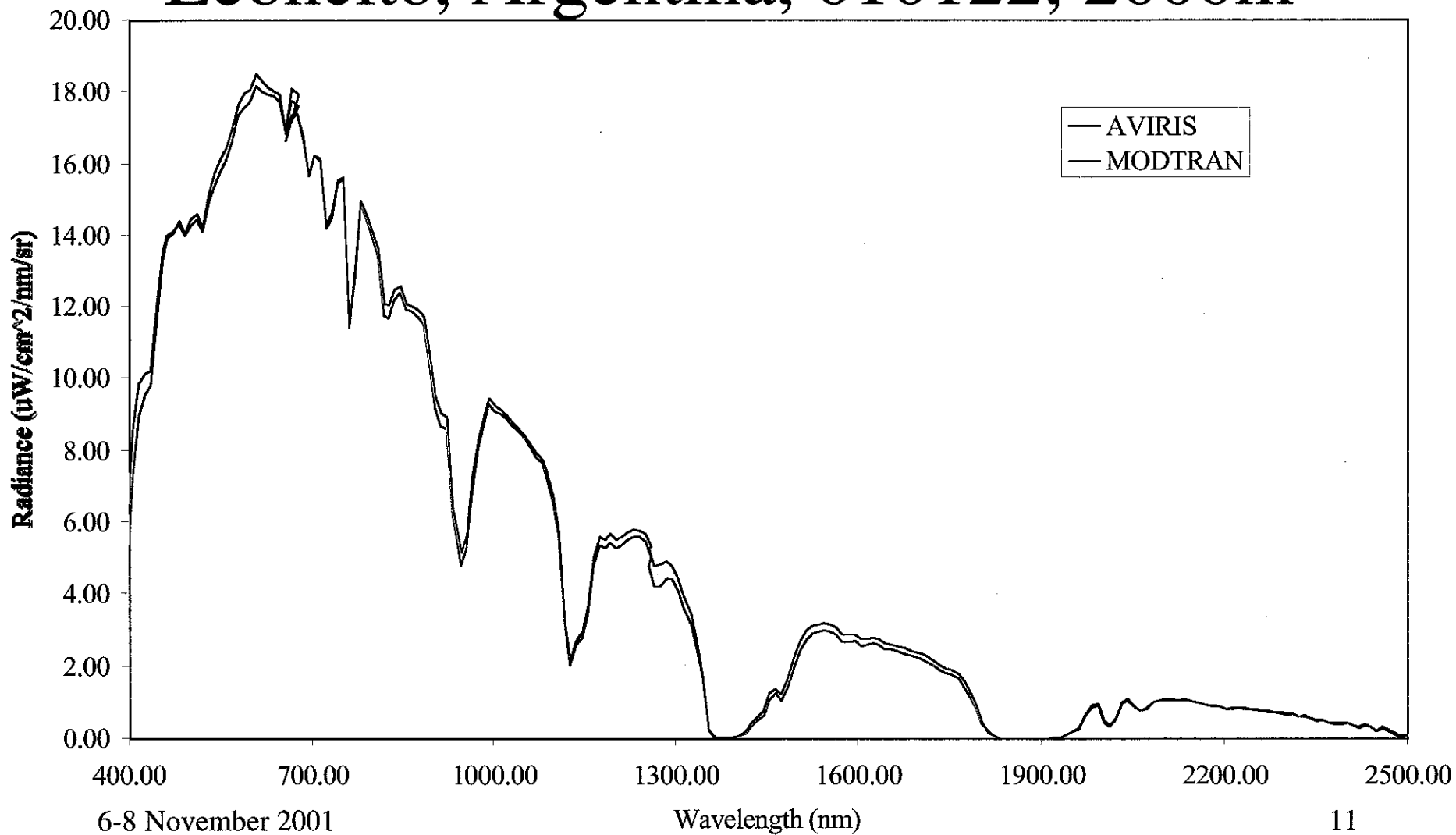
# Calibration Target

## Leoncito, Argentina 010122, 2000m



# Preliminary Calibration Experiment Results

## Leoncito, Argentina, 010122, 2000m



6-8 November 2001

Wavelength (nm)

11

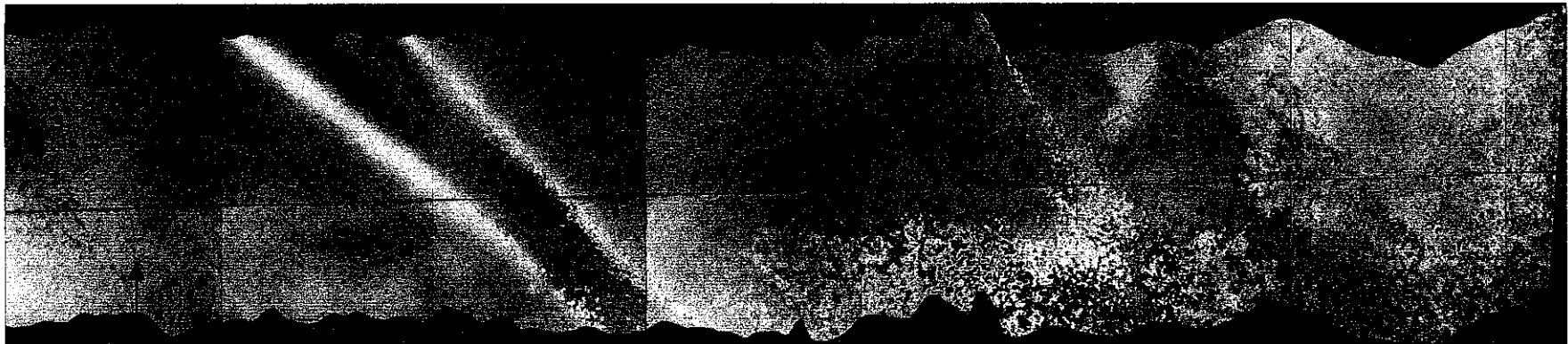
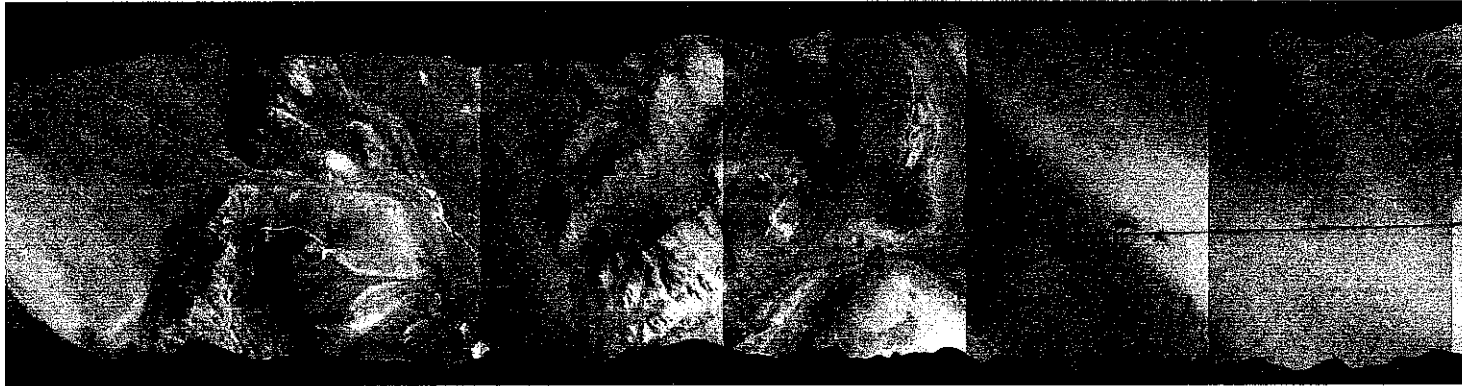
# Hyperion Image Leoncito, Argentina 010122



6-8 November 2001

12

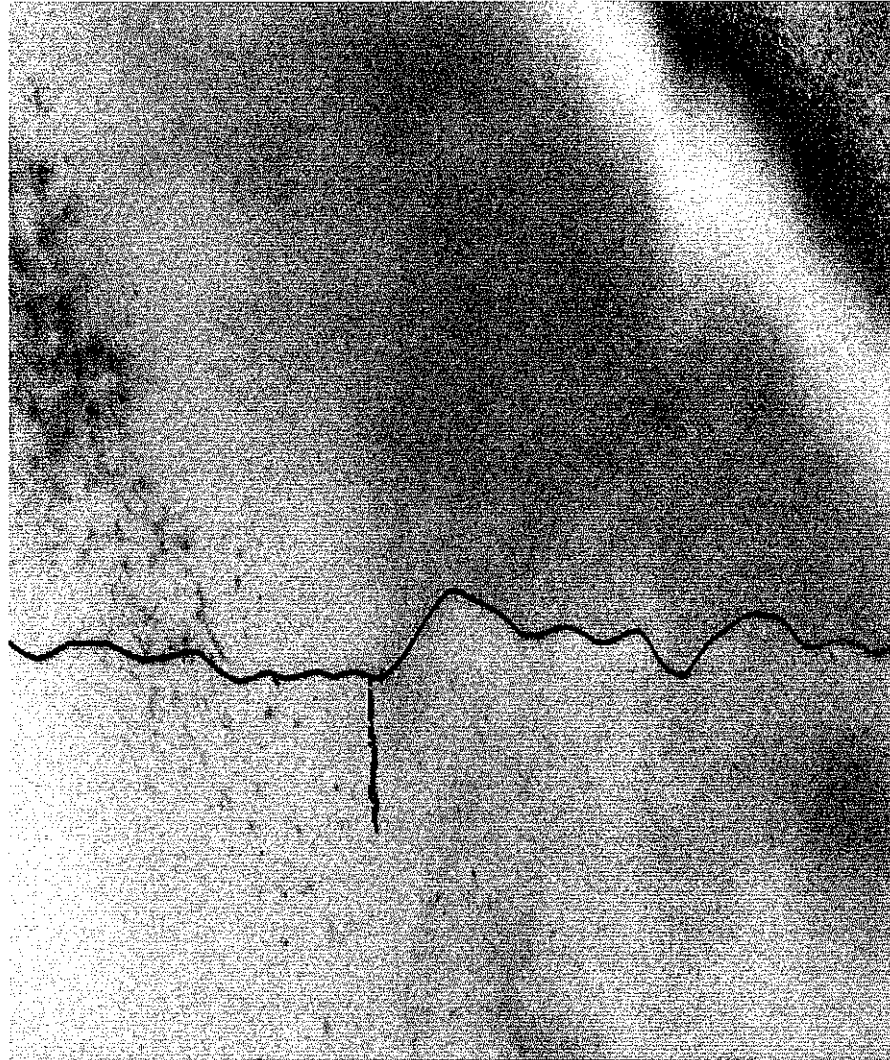
# AVIRIS Image Arizaro, Arg 010207



Calibration Target

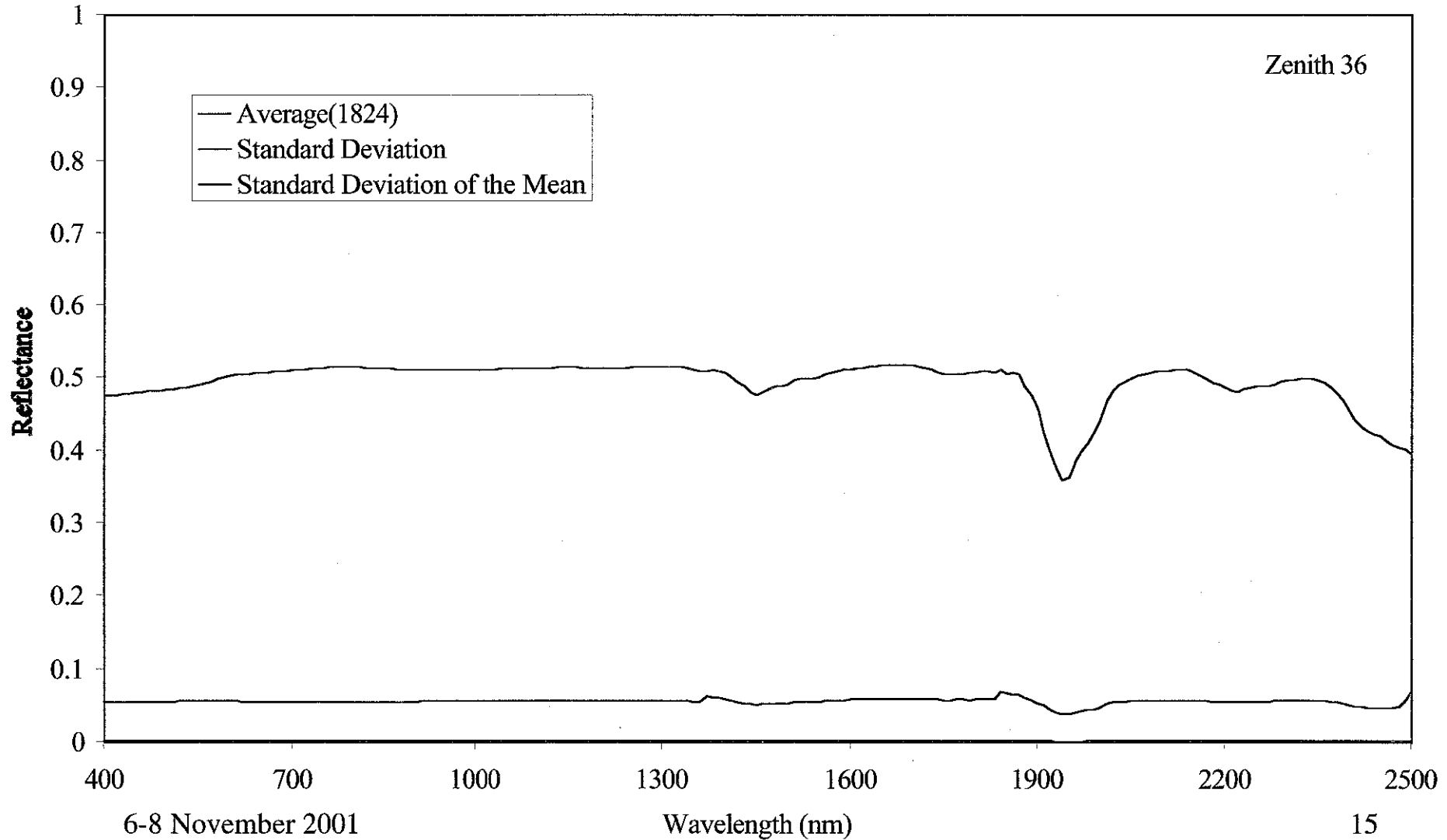
6-8 November 2001

# AVIRIS Image Arizaro, Argentina 010207

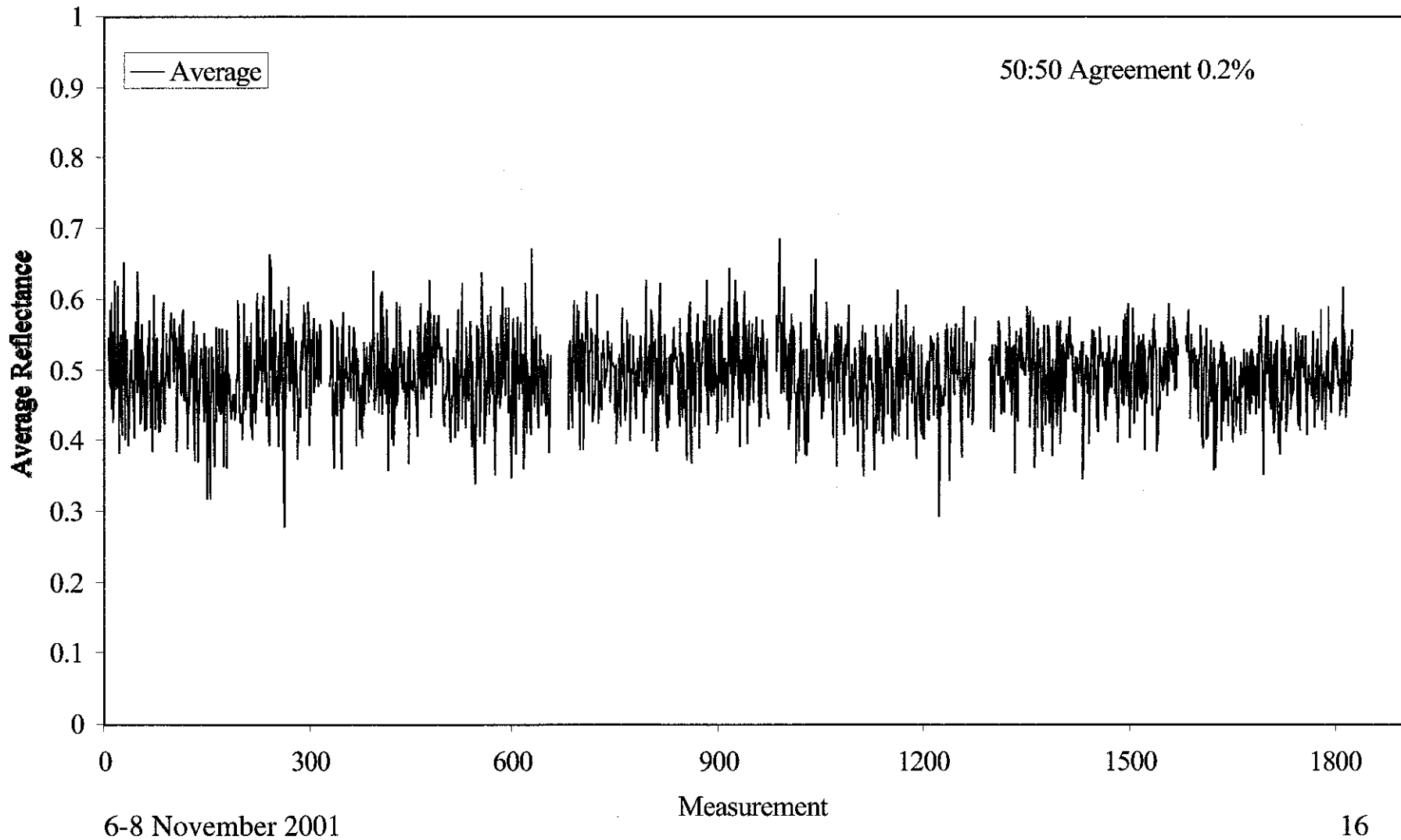


6-8 November 2001

# Arizaro Calibration Target Measured Surface Reflectance

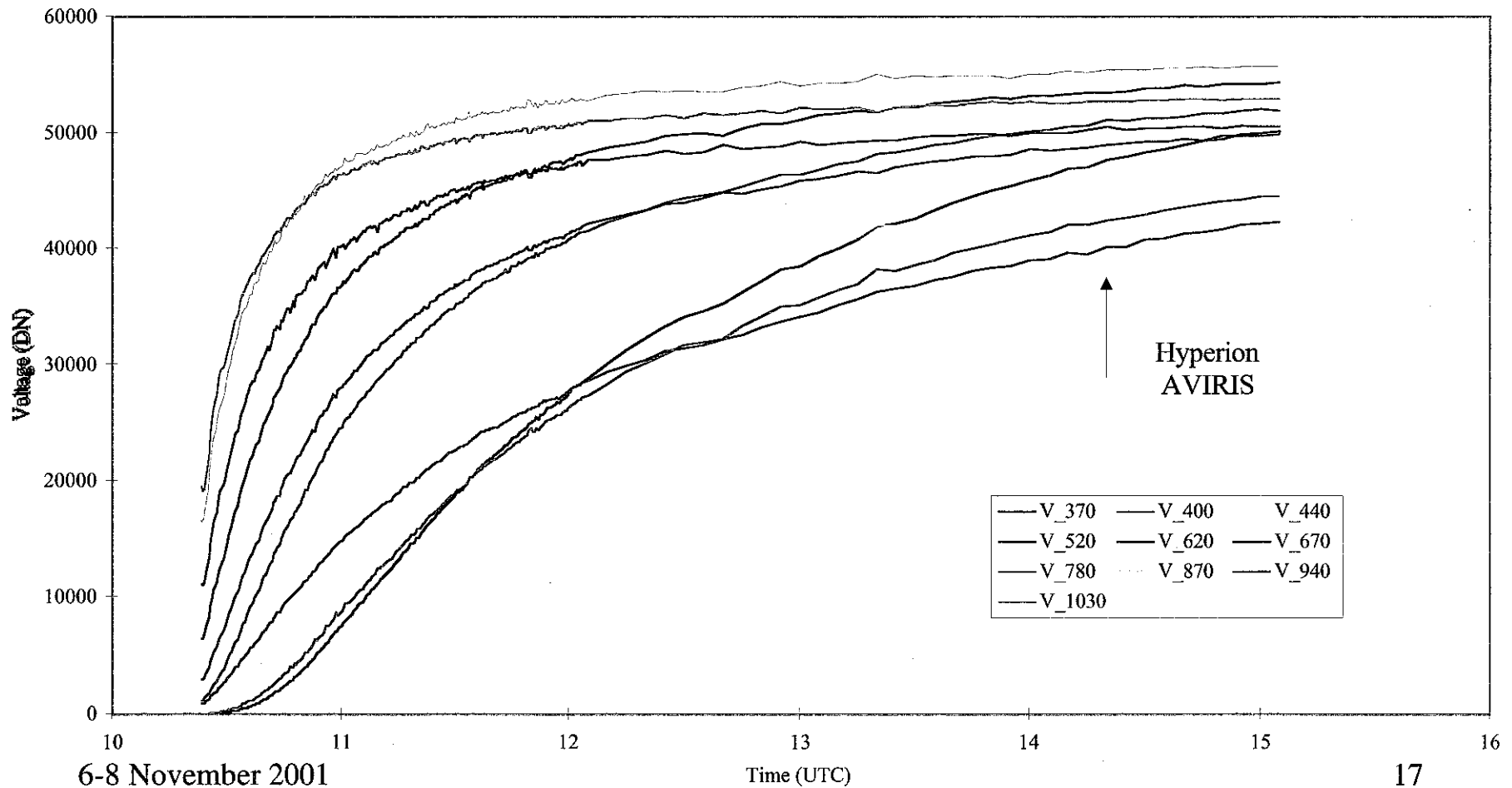


# Calibration Target Arizaro, Argentina 010207

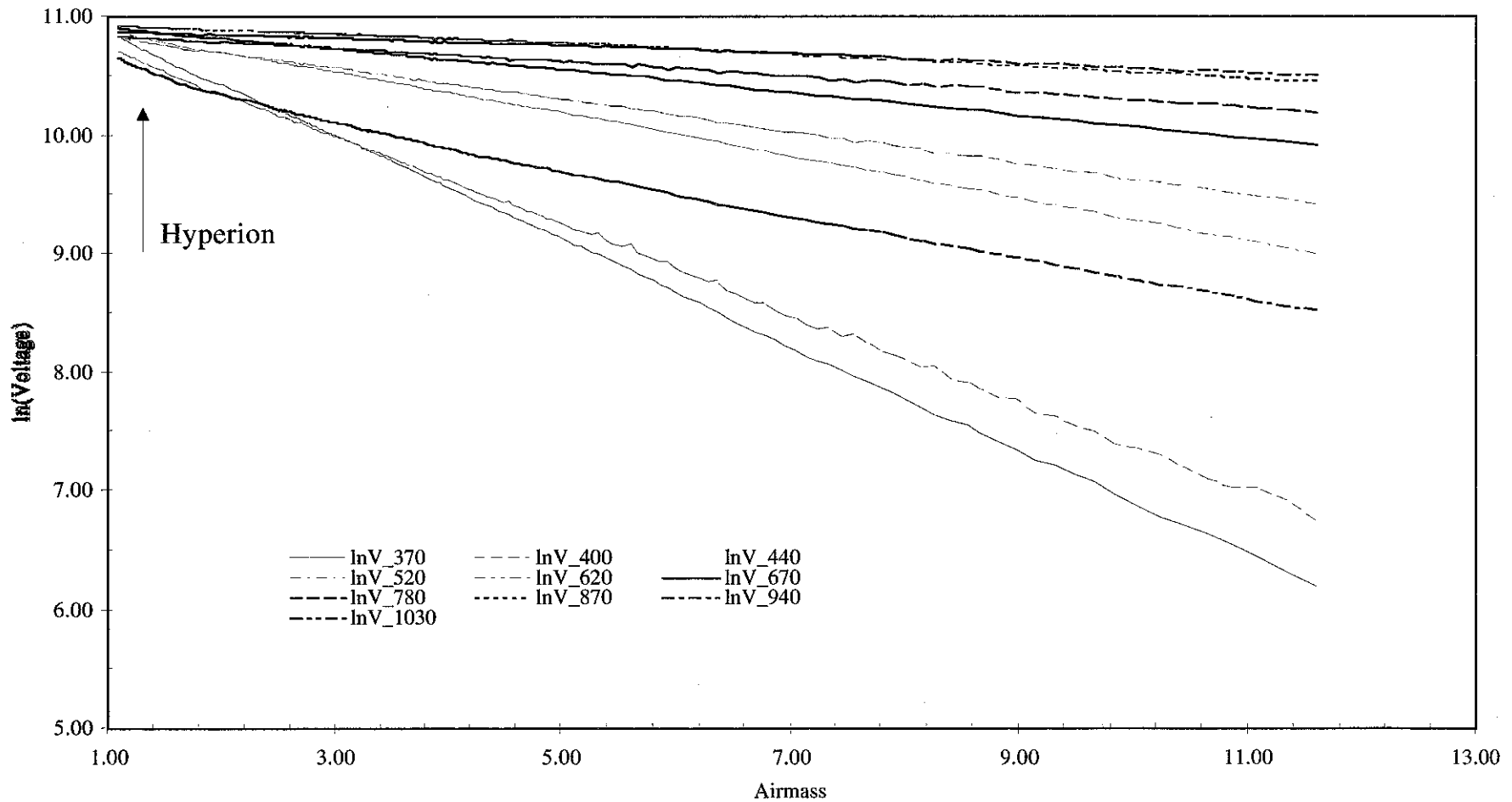




# Optical Depth Measurements Arizaro, Argentina 010207



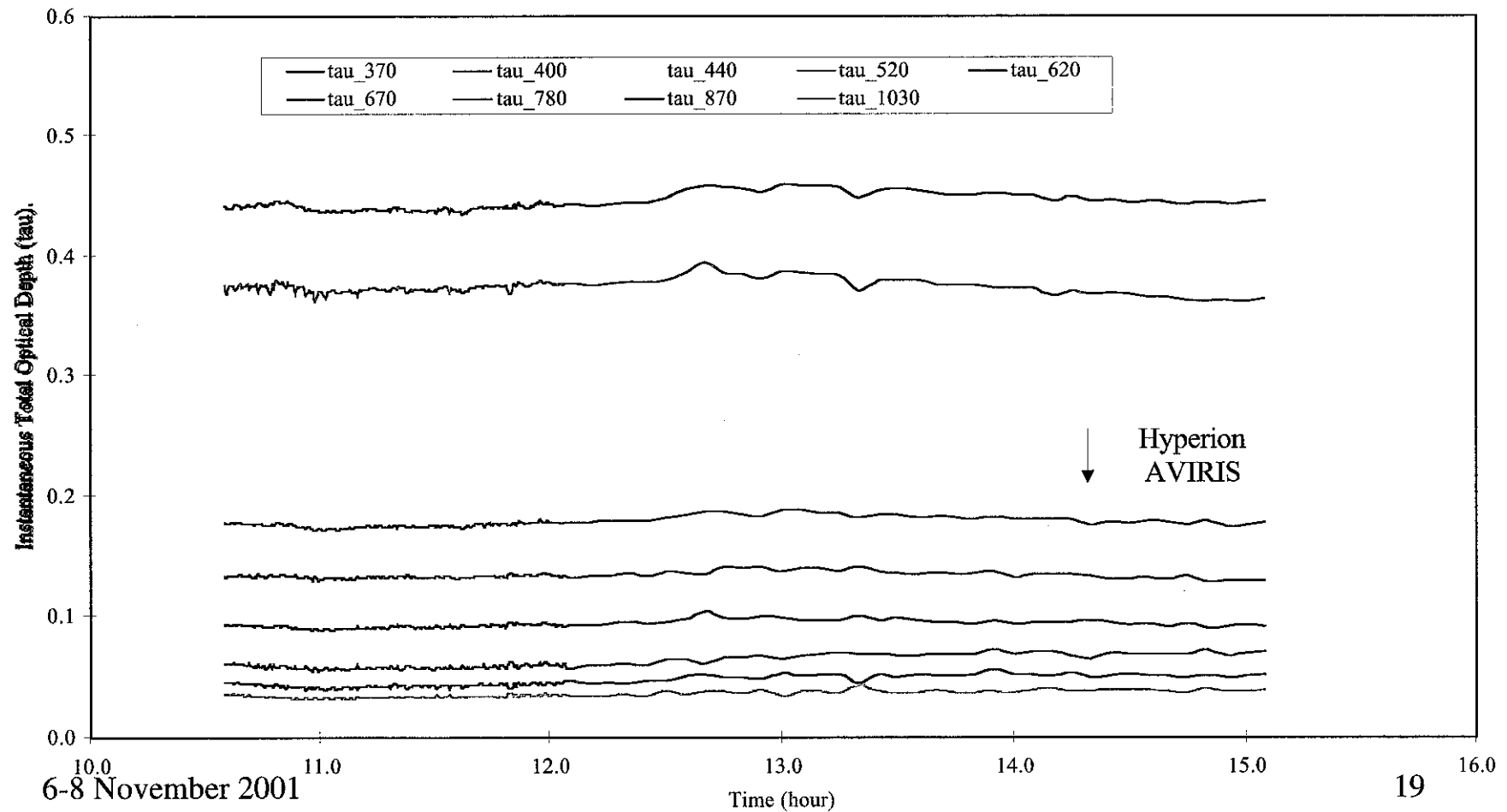
# Optical Depth Measurements Arizaro, Argentina, 010207



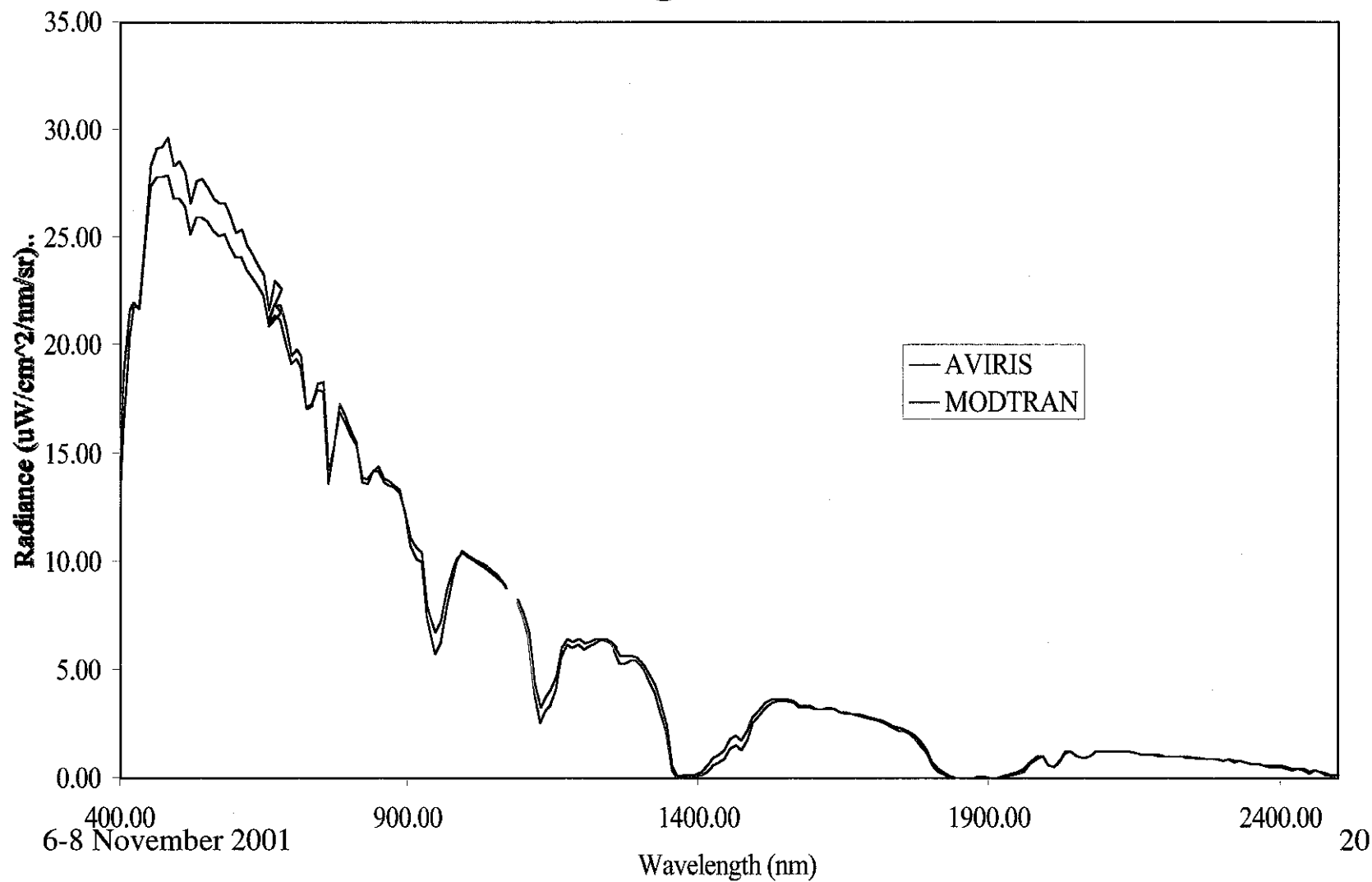
6-8 November 2001

# Optical Depth Measurements

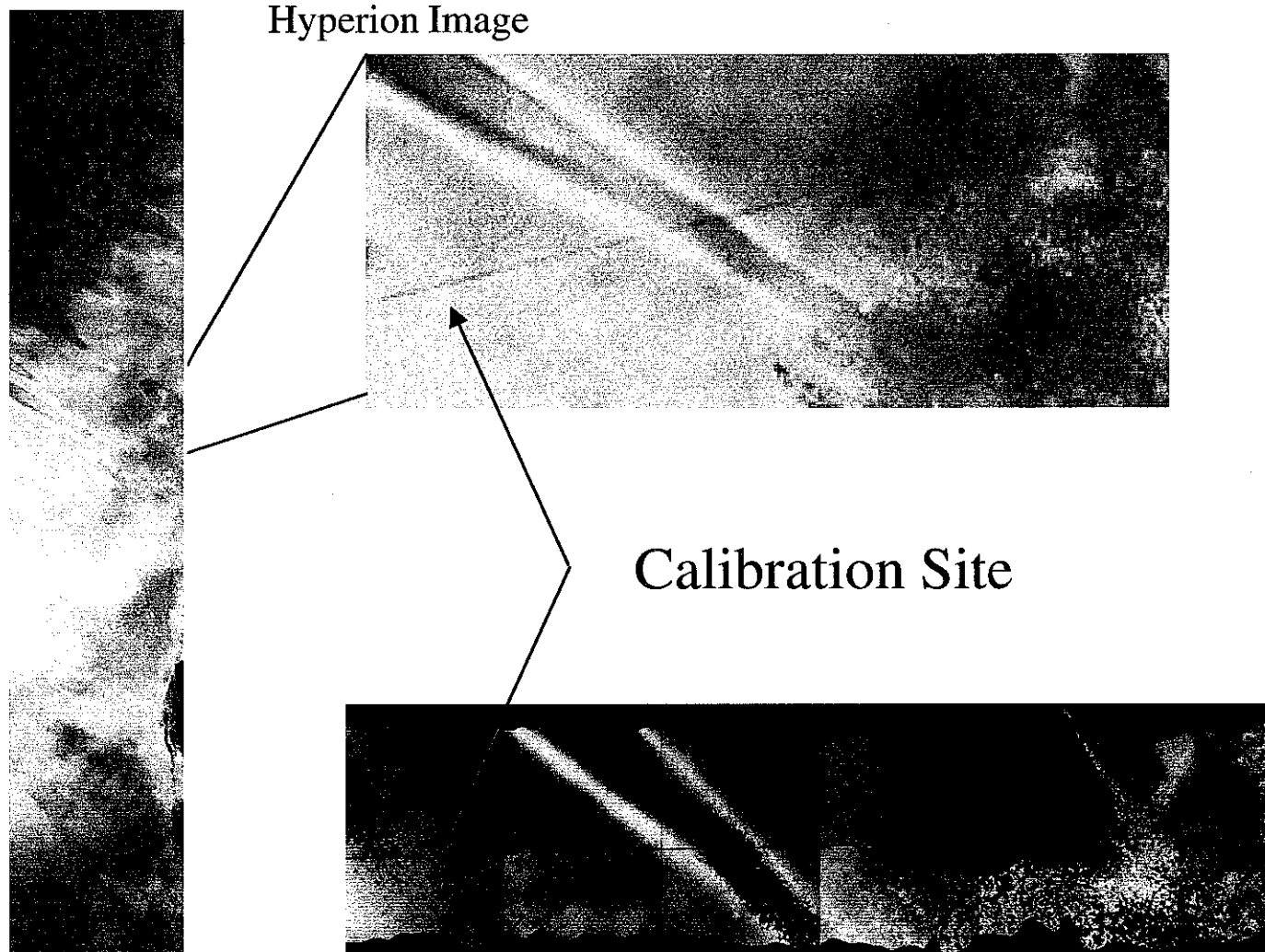
## Arizaro, Argentina, 010207, 3700m



# Preliminary Top-of Atmosphere Radiance Arizaro, Argentina 010207



# Hyperion Image Arizaro 010207

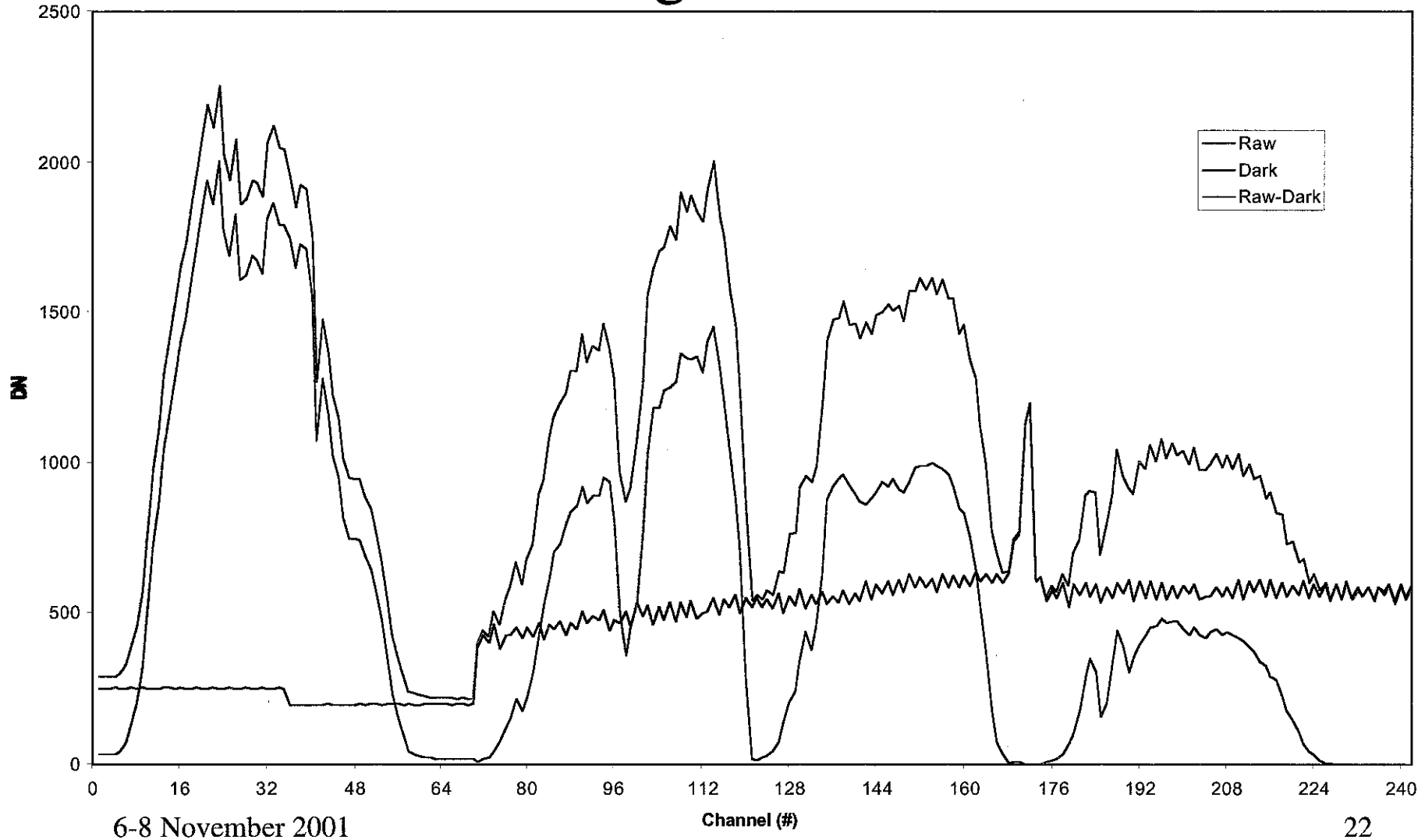


6-8 November 2001

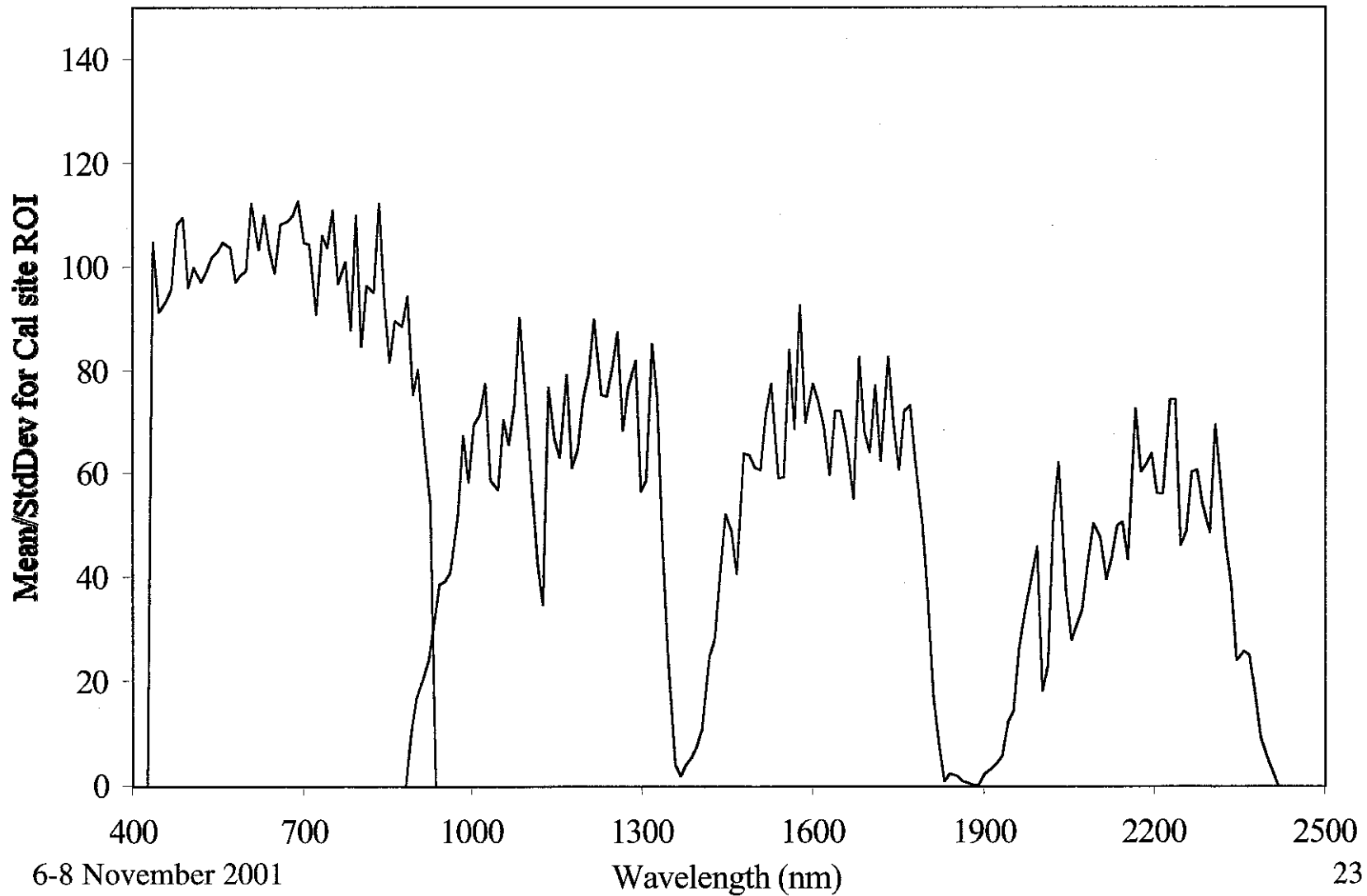
AVIRIS Image

# Raw Hyperion Data

## Arizaro, Argentina 010207



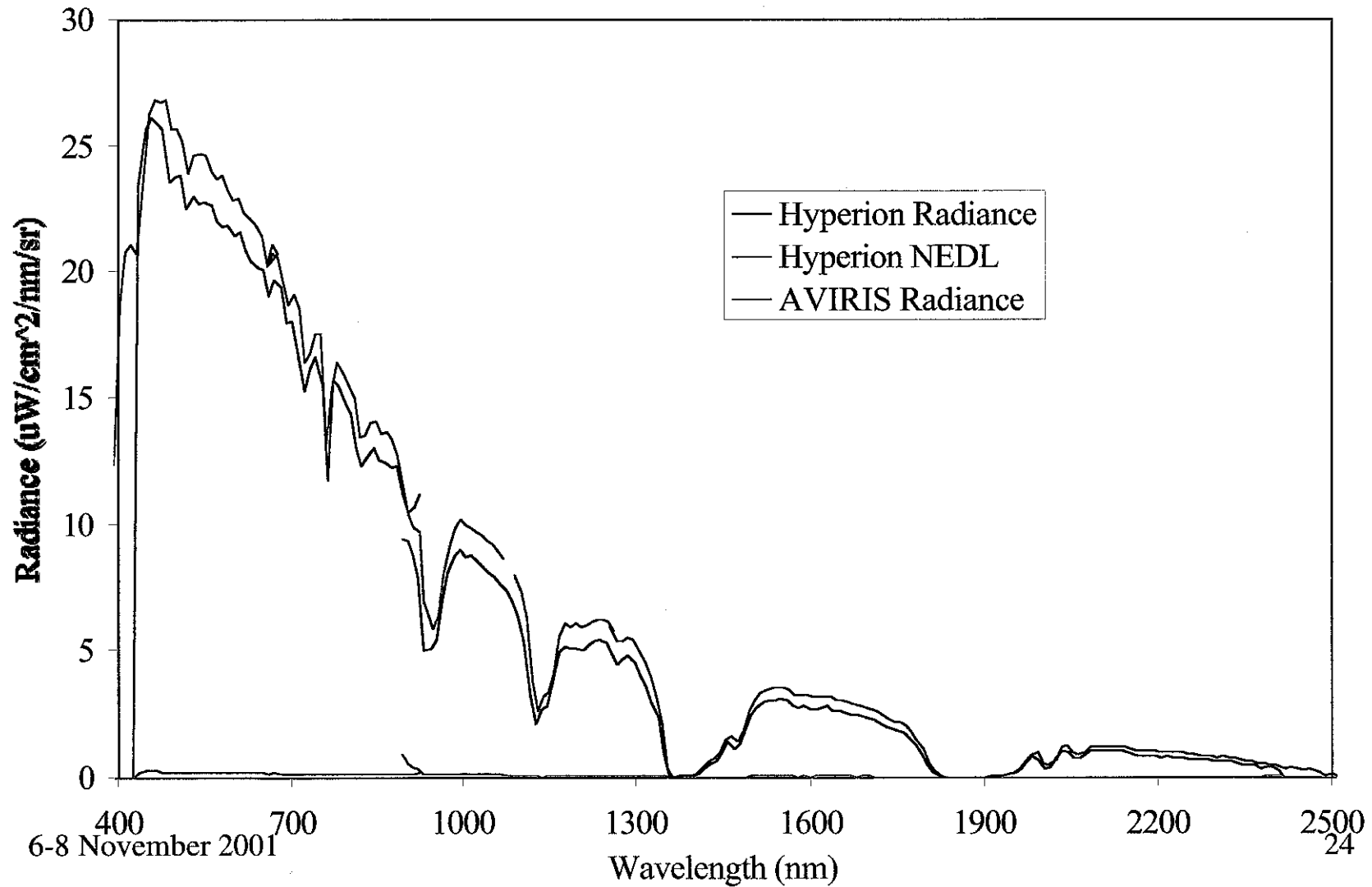
# Scene Based Estimate of Hyperion SNR



6-8 November 2001

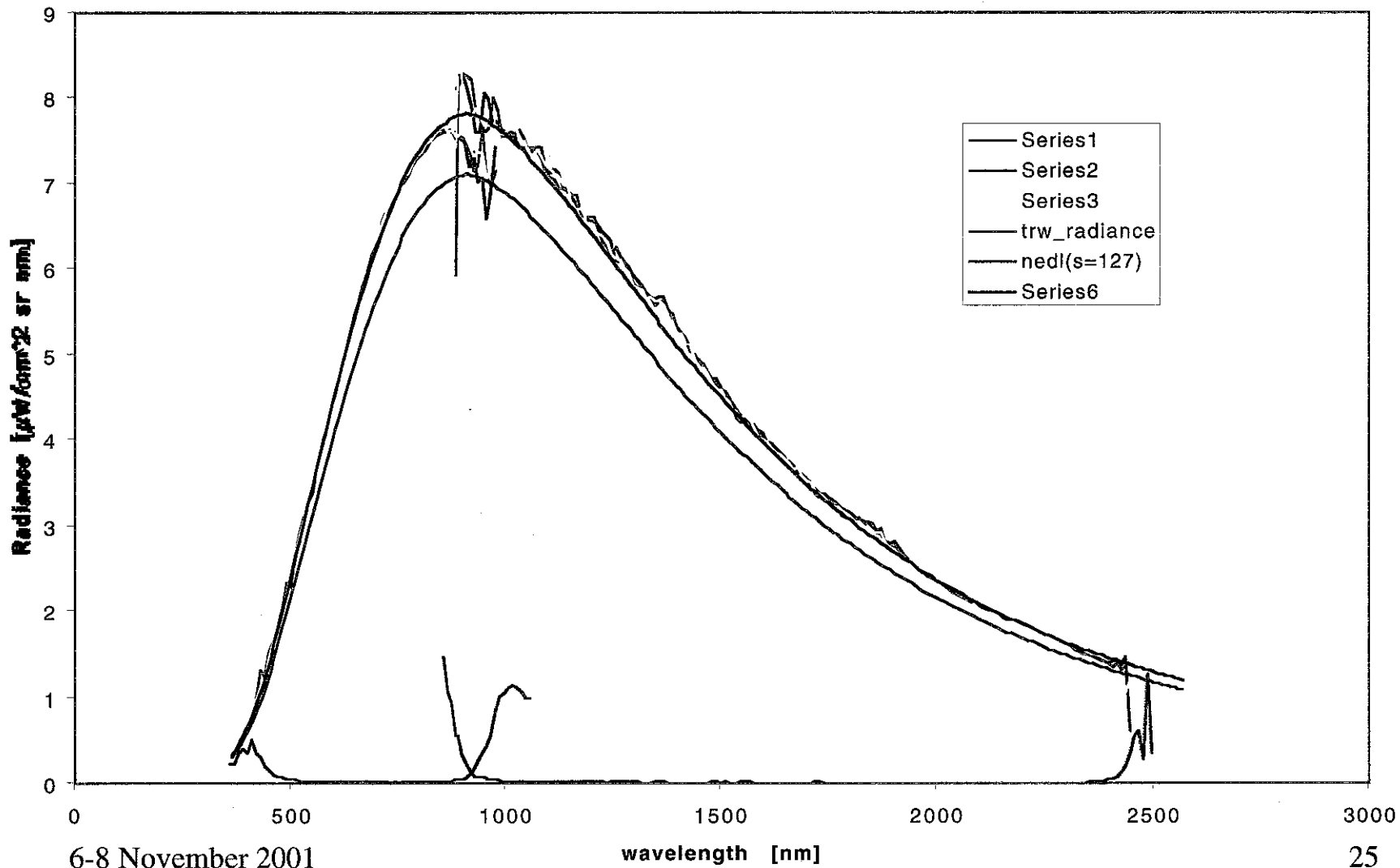
Wavelength (nm)

# Comparison of AVIRIS and Hyperion Data Calibrated To Radiance





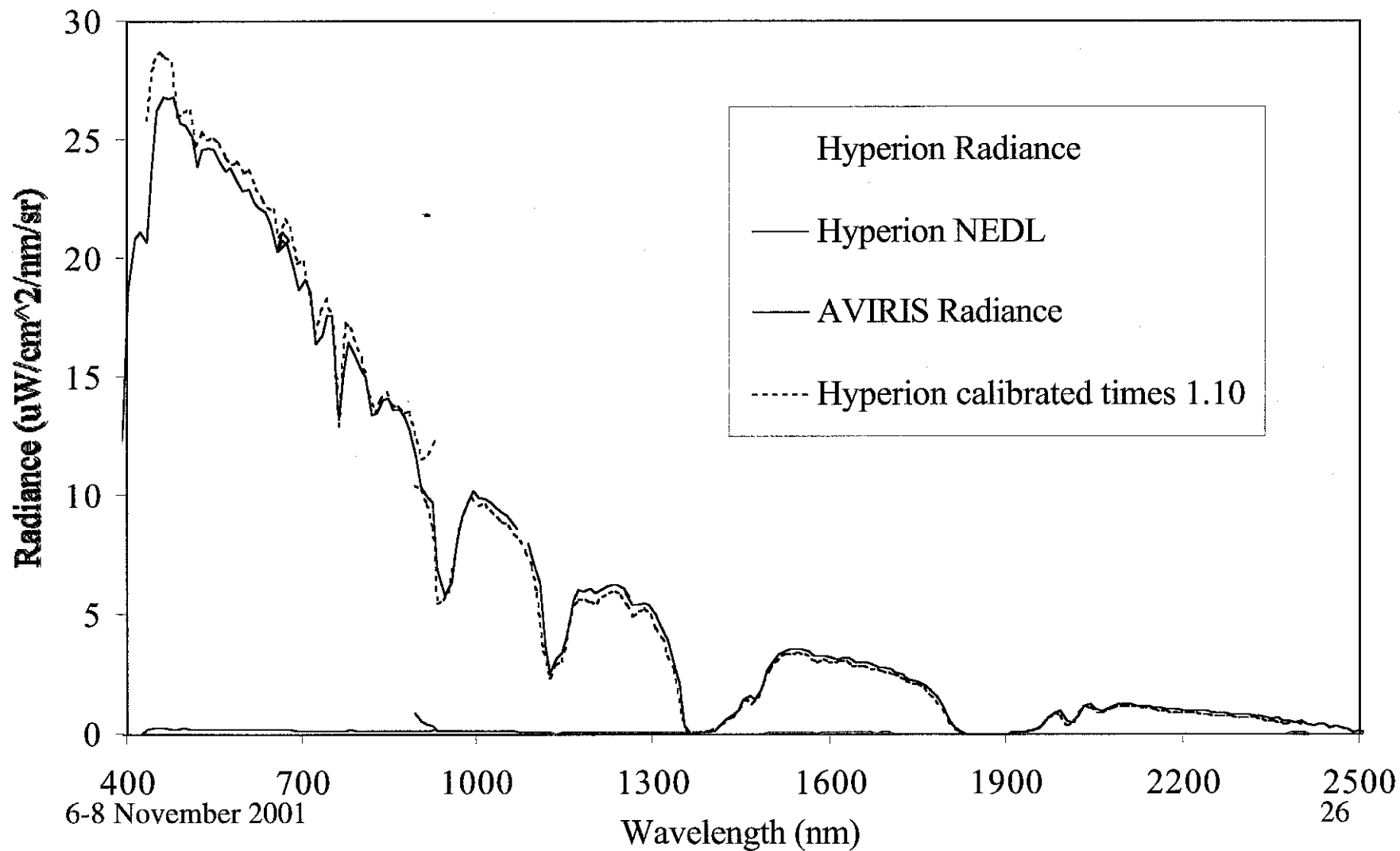
# Laboratory Comparison of Radiometric Standards



6-8 November 2001

25

# Adjust Radiometric Scale ?



# Summary

## Overview of AVIRIS Argentina Campaign

- 125 flight lines collected for EO-1 science validation team and CONAE-funded investigators

## Preliminary Results from two vicarious calibration experiments conducted in Argentina

- AVIRIS has been shown to be well calibrated

10% disagreement in radiometric scale in flight is consistent with laboratory comparison