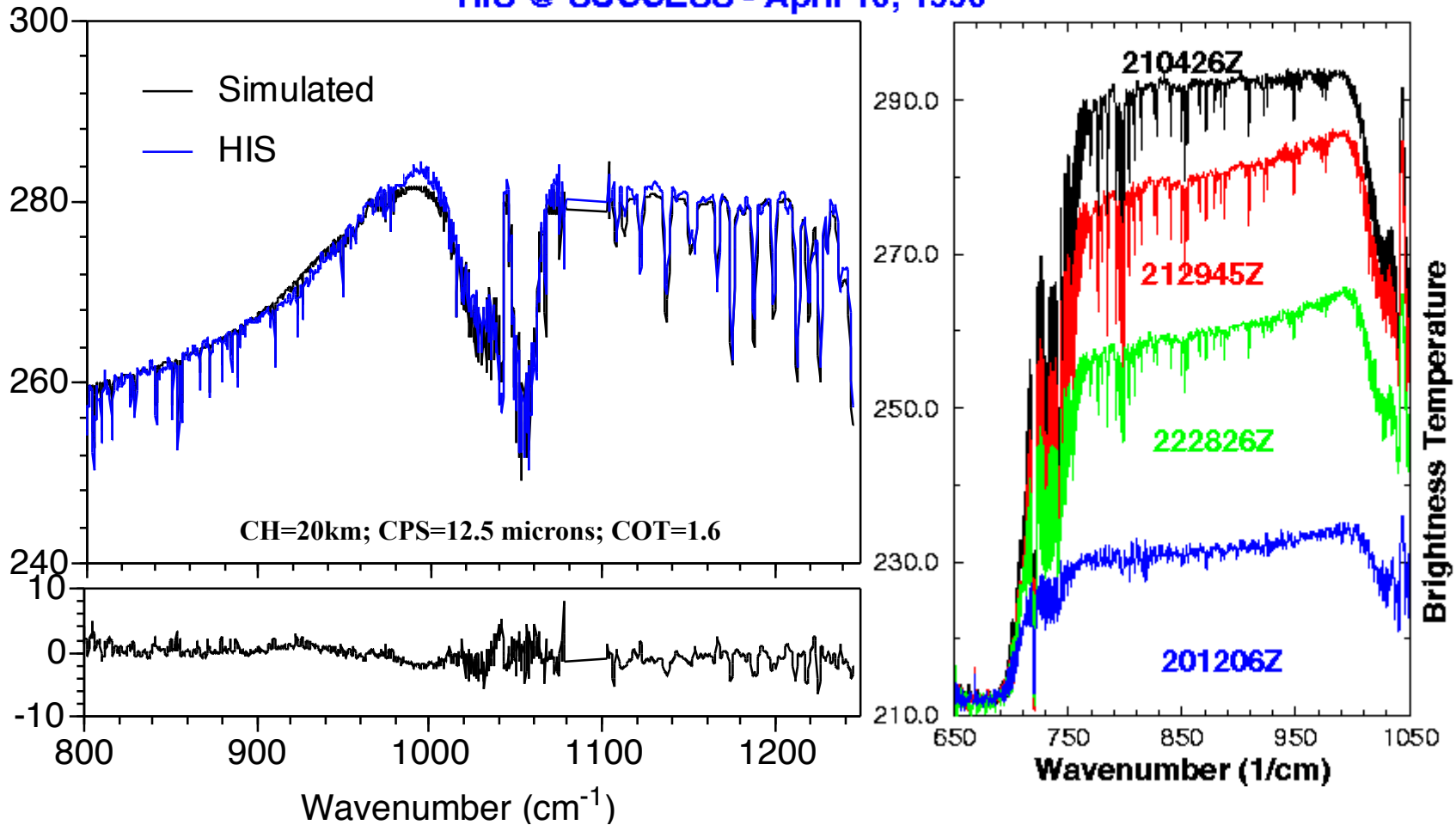


# Hyperspectral/Ultraviolet Infrared Measurement Characteristics - continue

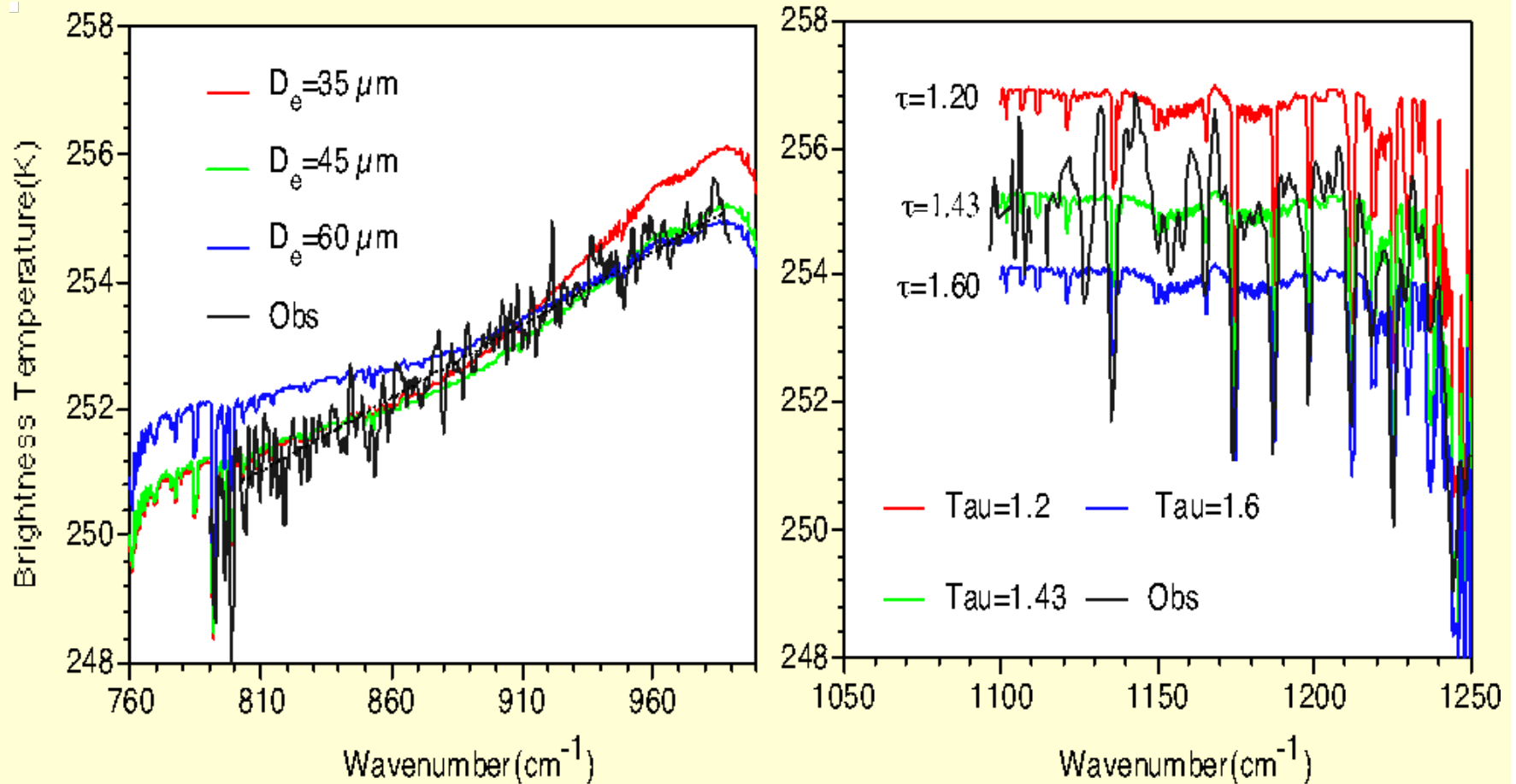
## Infrared Cloud Emissivity & Brightness Temp. Spectra

HIS @ SUCCESS - April 16, 1996



**Spectral Cloud Signature**

# Hyperspectral/Ultraviolet Infrared Measurement Characteristics - continue



**Spectral Cloud Signature to  
Particle Size (left) & Optical Thickness (right)**

# Hyperspectral/Ultraviolet Infrared Measurement Characteristics - continue

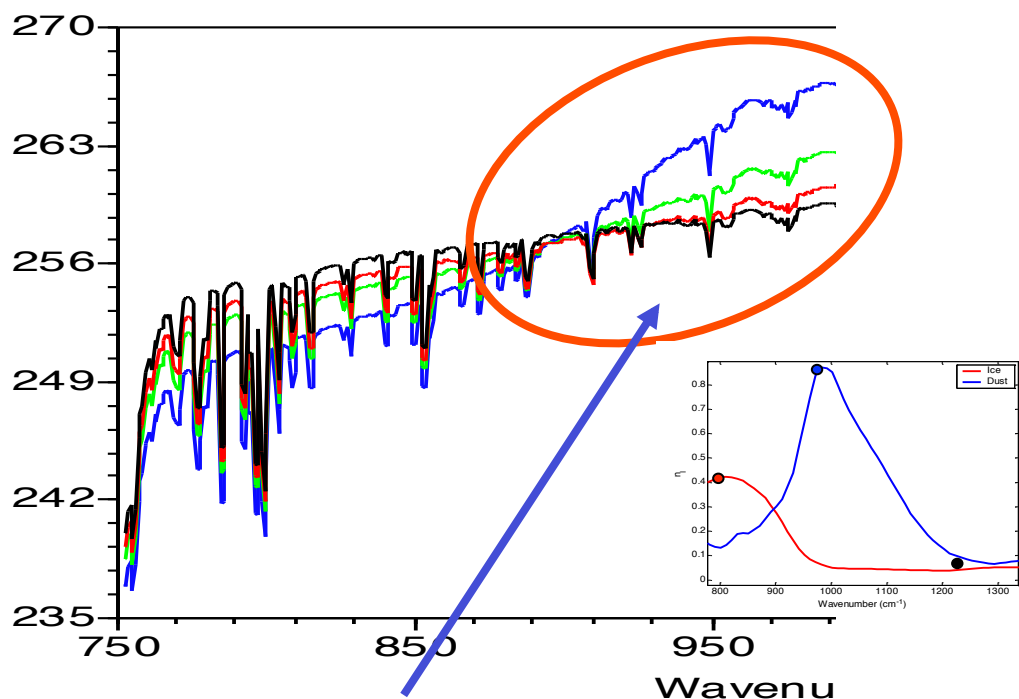
**Cirrus Clouds at Different Particle Sizes of  
CH=10km; COT=1.0; Std Atm.; Ts=288K**

**Green – clear sky;**

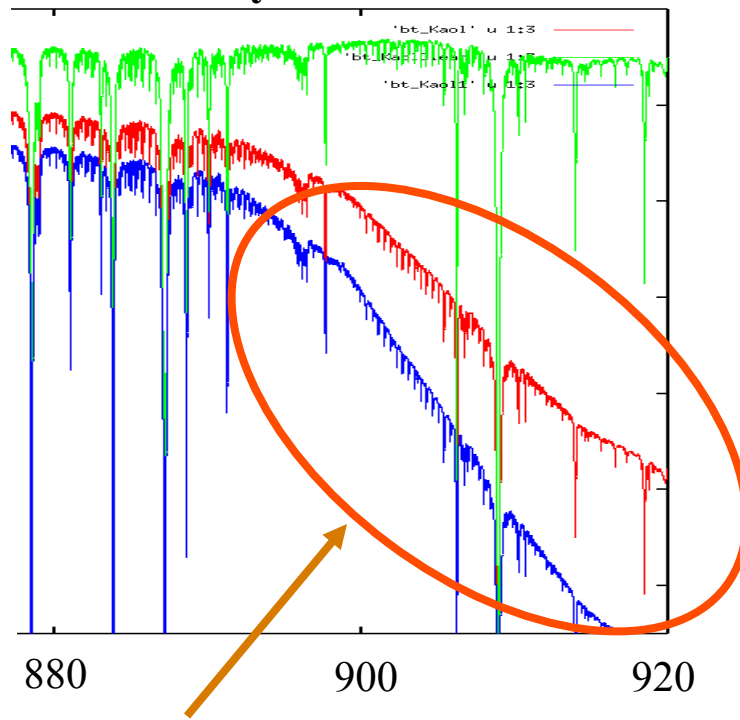
**Red – dust layer from 1013 to 701.2 mb;**

**Blue – dust layer from 900 to 600mb**

—  $D_e=10 \mu\text{m}$  —  $D_e=30 \mu\text{m}$  —  $D_e=50 \mu\text{m}$  —  $D_e=80 \mu\text{m}$



**Ice Cloud Spectral Slope**



**Dust Spectral Slope**

**Spectral Signature to  
Ice Clouds (left) & Dust/Aerosol (right)**

# Gases & Particles Detection Potential

## Mount Etna



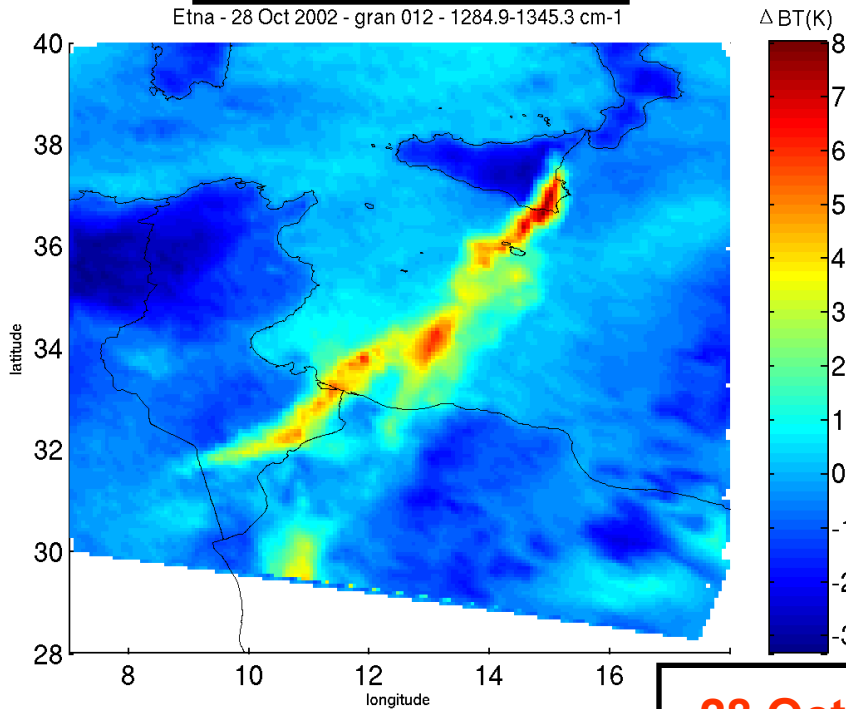
**SO<sub>2</sub> signal**

**1284-1345 cm<sup>-1</sup>**

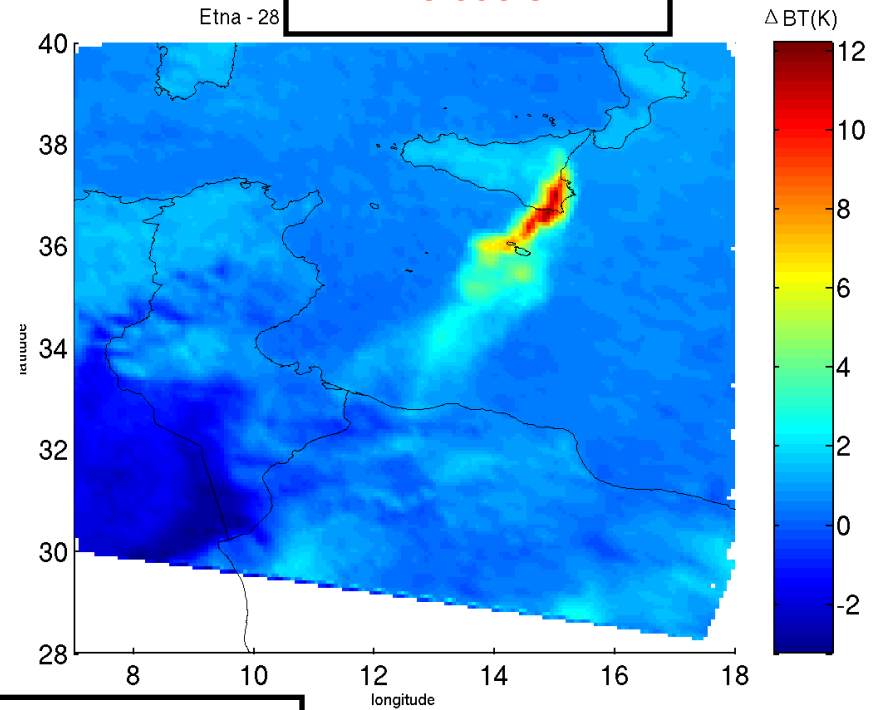
**Ash signal**

**1228-995 cm<sup>-1</sup>**

Etna - 28 Oct 2002 - gran 012 - 1284.9-1345.3 cm<sup>-1</sup>



Etna - 28



**28 Oct 2002 (0112UT)**

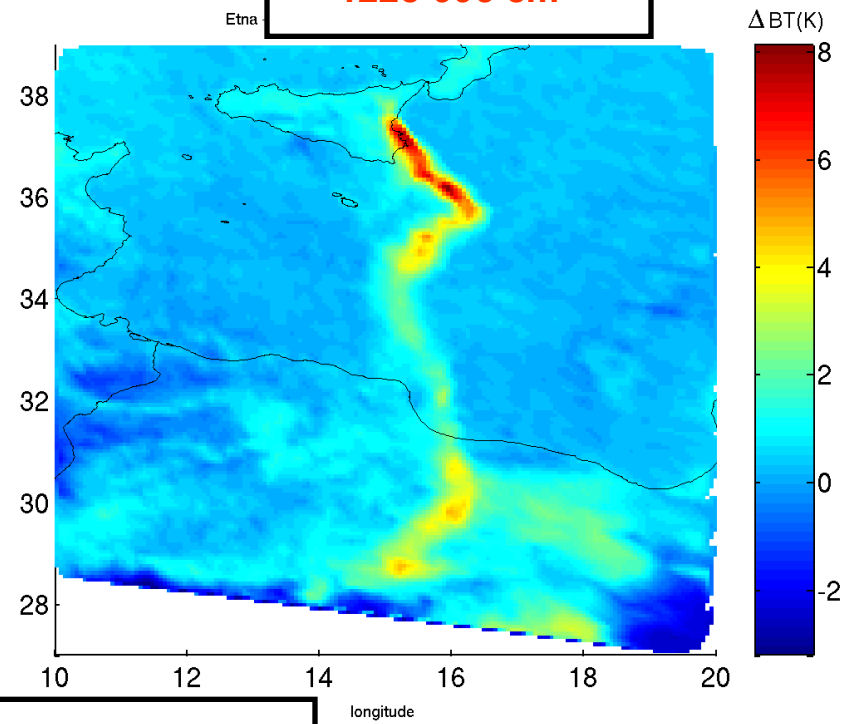
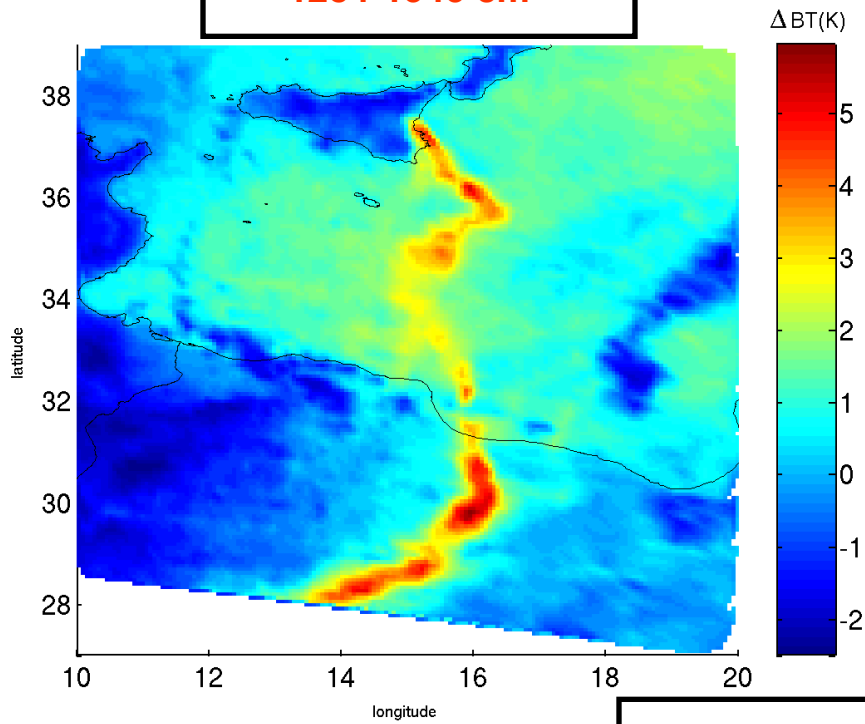
# Mount Etna



**Gases &  
Particles  
Detection  
Potential**

**SO<sub>2</sub> signal**  
1284-1345 cm<sup>-1</sup>

**Ash signal**  
1228-995 cm<sup>-1</sup>



**30 Oct 2002 (0100UT)**

# Gases & Particles Detection Potential

## Mount Etna

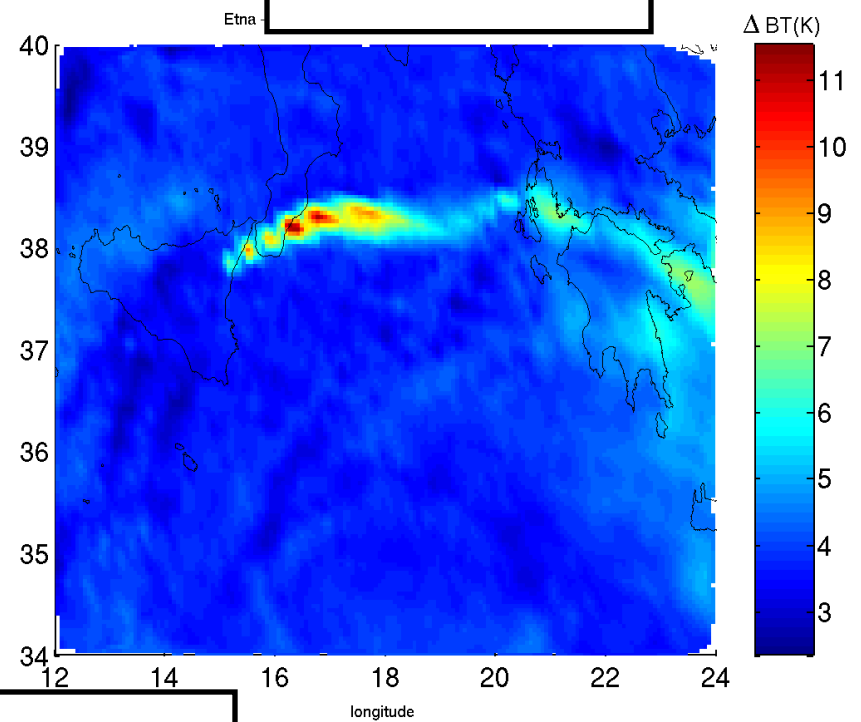
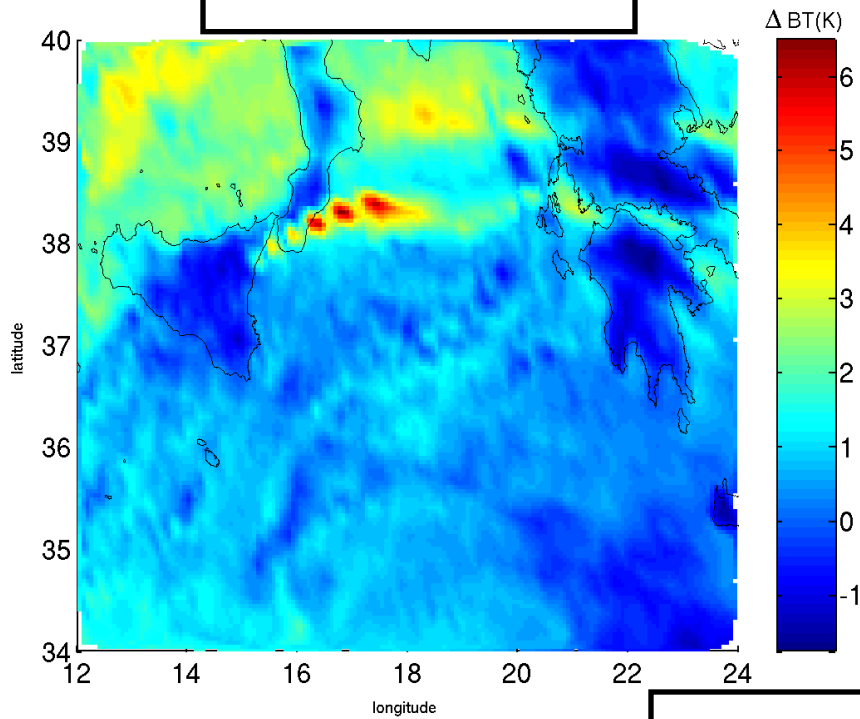


**SO<sub>2</sub> signal**

1284-1345 cm<sup>-1</sup>

**Ash signal**

1228-995 cm<sup>-1</sup>



**1 Nov 2002 (0048UT)**