TECHNIQUES INVOLVED

IR DIRECT SUN OBSERVATIONS
Jungfraujoch, Switzerland

JUNGFRAUJOCH - Sept 1985
Solar Height / 78.80 deg.

JUNGFRAUJOCH - NO₂ MEASUREMENTS
29.S4 cm³ ml⁻¹ measured
September 1985

RESULTS

VISIBLE TWILIGHT OBSERVATIONS
Aire sur l’Adour and Pic du Midi
Southern France

VISIBLE DIRECT SUN OBSERVATIONS
Aire sur l’Adour, Southern France

CONCLUSIONS

1.- A PRIORI, NO BASIC INCONSISTENCY AMONG RESULTS

2.- IMPROVE UNDERSTANDING AND SLANT-PATH
APPLICABILITY OF DIURNAL VARIATION OF NO₂

GLOBUS NO₂ - 1985

GLOBUS NO₂ - 1985

GLASSTOU NO₂ MEASUREMENTS
September 1985

GLOBUS NO₂ - 1985

GLASSTOU NO₂ MEASUREMENTS
September 1985

OVERALL NEAR-SUNSET INTERCOMPARISON
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TYPICAL SAMPLE SPECTRA RECORDED AT THE JUNGFRAUJOCH WITH THE FTS (SPECTRAL RESOLUTION OF 0.005 cm⁻¹), SHOWING THE TARGET NO₂ MANIFOLD ABSORPTION AT 2914.65 cm⁻¹. THE TICK MARKS INDICATE THE POSITIONS OF OTHER NO₂ ABSORPTIONS.
EXAMPLE OF FITTING THE NO² ABSORPTION FEATURE AT 2914.65 cm⁻¹ OBSERVED AT ISSJ FOR A SOLAR ELEVATION ANGLE OF 1.80 DEGREES.
Figure 2: Graphical representation of the equivalent widths measurements of the NO₂ manifold at 2914.65 cm⁻¹, versus zenith angle, observed at ISSJ during September 1985. The zenith curves of growth corresponding to a "typical reference" profile (x1) and to half of its concentrations (x.5) are drawn to visualize the asymmetry between the morning and evening observations.
EVOLUTION OF THE NO\textsubscript{2} COLUMN ABUNDANCE AT AIRE SUR L'ADOUR AND AT PIC DU MIDI BETWEEN AUGUST 28 AND OCTOBER 5, 1985, OBTAINED BY THE TWILIGHT METHOD AT SUNRISE AND AT SUNSET. THE FULL TRIANGLES INDICATE DAYS WITH THUNDERSTORM ACTIVITY OVER NORTHERN SPAIN AND THE PYRENEES. THE OPEN TRIANGLES IDENTIFY DAYS WITH OVERCAST SKY,
NO2 COLUMN ABUNDANCES ABOVE AS A DERIVED FROM DIRECT SUN VISIBLE OBSERVATIONS MADE BETWEEN SEPTEMBER 5 AND 11. THE MAGNITUDES OF THE COLUMNS AND THEIR VARIABILITY SUGGEST THE OCCURRENCE OF FREQUENT LOCAL BOUNDARY LAYER POLLUTION.
Mean September 1985 column abundance of NO₂ at discrete zenith angles, derived from the ensemble of the equivalent widths given in Fig. 2, and showing clearly the column's daytime variation. The error bars correspond to one standard deviation around the mean. Other results are reproduced for comparison purposes.
COMPARISON OF THE ORIGINAL NEAR-SUNSET COLUMN ABUNDANCES PRESENTED IN THIS PAPER WITH RESULTS DERIVED FROM QUASI SIMULTANEOUS BALLOON AND SATELLITE OBSERVATIONS.

OVERALL NEAR-SUNSET INTERCOMPARISON
CONCLUSIONS

1.- A-PRIORI, NO BASIC INCONSISTENCY AMONG RESULTS

2.- IMPROVE UNDERSTANDING AND SLANT-PATH
    APPLICABILITY OF DIURNAL VARIATION OF NO$_2$