

## 6. フェゴ火山噴火後の成層圏エアロゾルのライダー観測

### LIDAR OBSERVATIONS OF STRATOSPHERIC AEROSOL CONTENT AFTER THE ERUPTION OF FUEGO VOLCANO

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Lidar observations of the aerosols have been made in Fukuoka (33°N, 130°E) since October, 1972. The Junge layer always appeared around 21km height and the peak values of the non-molecular backscattering coefficient  $\beta_M$  for the ruby wavelength (6943 Å) laid between  $1-2 \times 10^{-9}$  / cm in the period from October, 1972 to June, 1973.

An extraordinary intense scattering layer appeared in the height range 17-19 km first in middle November, 1974. At the same time, the rawinsonde data showed an increase of the temperature amounting to about 5°C. The peak values of  $\beta_M$  observed in Fukuoka reached as high as some ten times those of the pre-volcanic layer. The high concentrations of the layer persisted from middle November, 1974 throughout August, the month of the last observation, though there were only a few intermittent observations during a rainy season from April to June.

The layer showed a quasi-periodic variation in its concentrations during the interval from November, 1974 to March, 1975 with three remarkable maxima, the period of which was about 40 days. A comparison of the results

with 100 mb circulation patterns shows that the maximum in  $\beta_M$  is likely to be associated by the passing of the stream lines flowing from lower latitudes, suggesting that the mean concentrations were higher in the low latitudes. After the late March, the concentrations were relatively low, though the values were still several times of those of the pre-volcanic layer, and some increases were observed occasionally.

If the Fuego volcanic dust was carried into the stratosphere in the night of 17 October, the dates of arrival at Fukuoka and other stations suggest that the dust cloud circuted the equatorial zone within about a month carried by the easterly wind and it drifted poleward with the meridional speed of approximately  $0.7^\circ/\text{day}$  to Fukuoka.

The size distribution of the injected aerosols is to be examined using concomittant observational results.