Some MU radar and balloon observations during the MUTSI campaign

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The MUTSI campaign
consisted of launching small balloons
for vertical high-resolution (10 cm) temperature measurements
near the MU radar site.
This experiment aimed at studying
radar physics and atmospheric turbulence at small scales.
Owing to comparisons between temperature profiles and radar observations, we could analyse some characteristics of particular turbulent structures observed around the tropopause.
These structures are well-mixed layers associated with strong temperature fluctuations at the
edges. They are likely the consequence of
strong local mixing events generated by Kelvin-Helmholtz instabilities and produce the
strong isotropic echoes observed by the radar. However, this mechanism
does not seem to explain the temperature sheets which produce aspect
sensitive echoes.

The MUTSI (MU radar, Temperature Sheets and Interferometry; 10-26 May 2000) campaign
consisted of launching 10 small 'capsphere-type' balloons
with instrumented gondolas for vertical high-resolution (10 cm) temperature measurements
near the Middle and Upper atmosphere (MU) radar site
(Shigaraki, Japan, 34.85 N, 136.10 E).
This radar-balloon experiment aimed at studying
Stratosphere-Troposphere radar physics and atmospheric turbulence at small scales.
An account of the different results corresponding to 2 balloon flight periods will be presented.
Owing to comparisons between temperature profiles and radar observations in Doppler Beam Scanning
modes (5 and 32 beams), we could analyse in details some characteristics and contexts of
generation of particular turbulent structures observed around and above the tropopause.
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