

Observations of Shallow Convection Over the Black Forest During COPS

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Acknowledgements to: The Facility for Airborne Atmospheric Measurements (FAAM) and the staff and crew of the FAAM BAe-146 aircraft; Alan Roberts, Alan Foster, Ian Ramsay-Rae, Maureen Smith, Victoria Smith

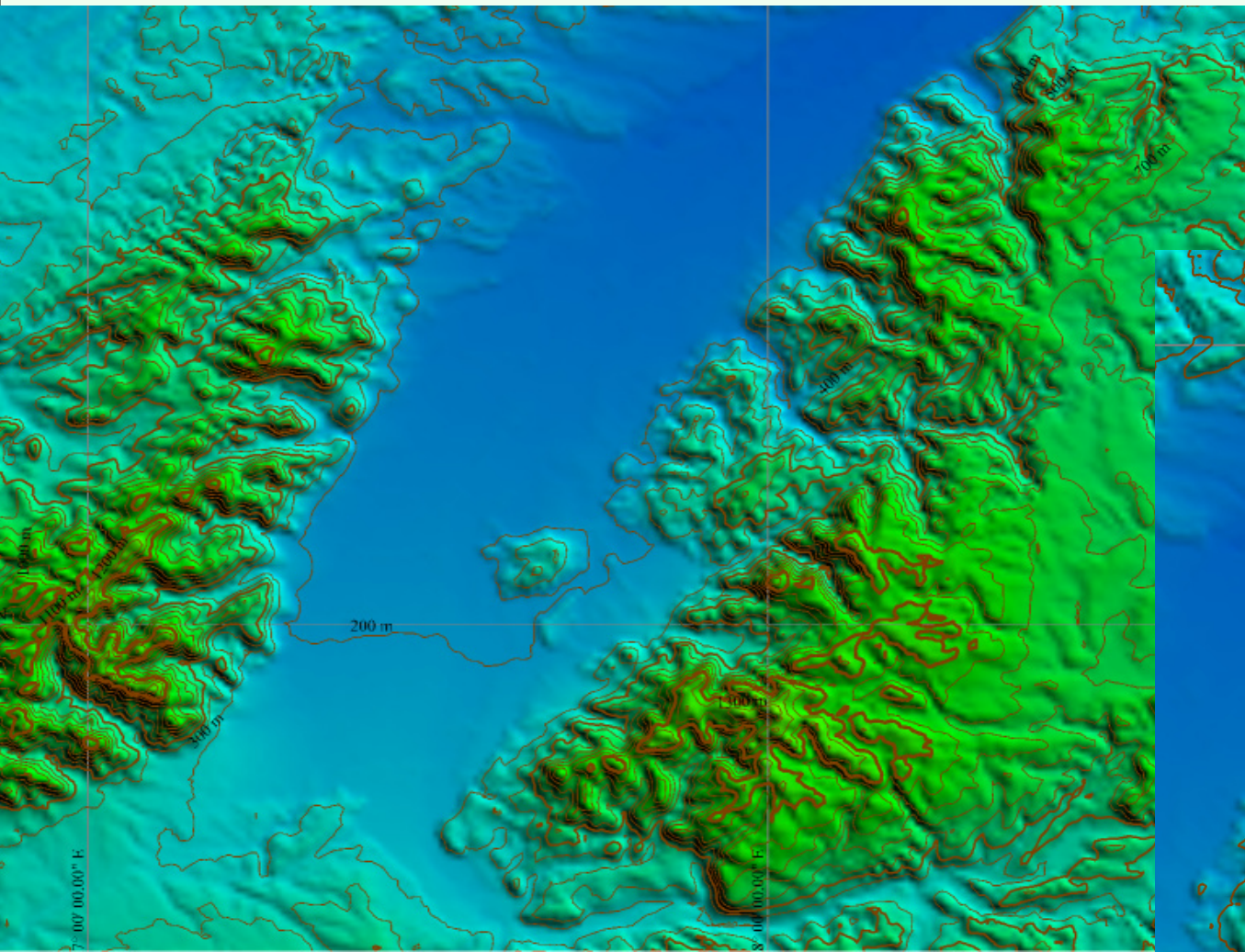
FAAM BAe-146 Aircraft



- ❑ To understand the processes leading to the initiation of deep convection over steep and complex terrain
- ❑ To understand the pathways by which air is drawn into growing convective cells, both over the mountain range and through the valleys
- ❑ To quantify the fluxes of boundary layer aerosols into convective cells over the mountains
- ❑ To understand the role of aerosols in the cloud microphysical processes over the mountains

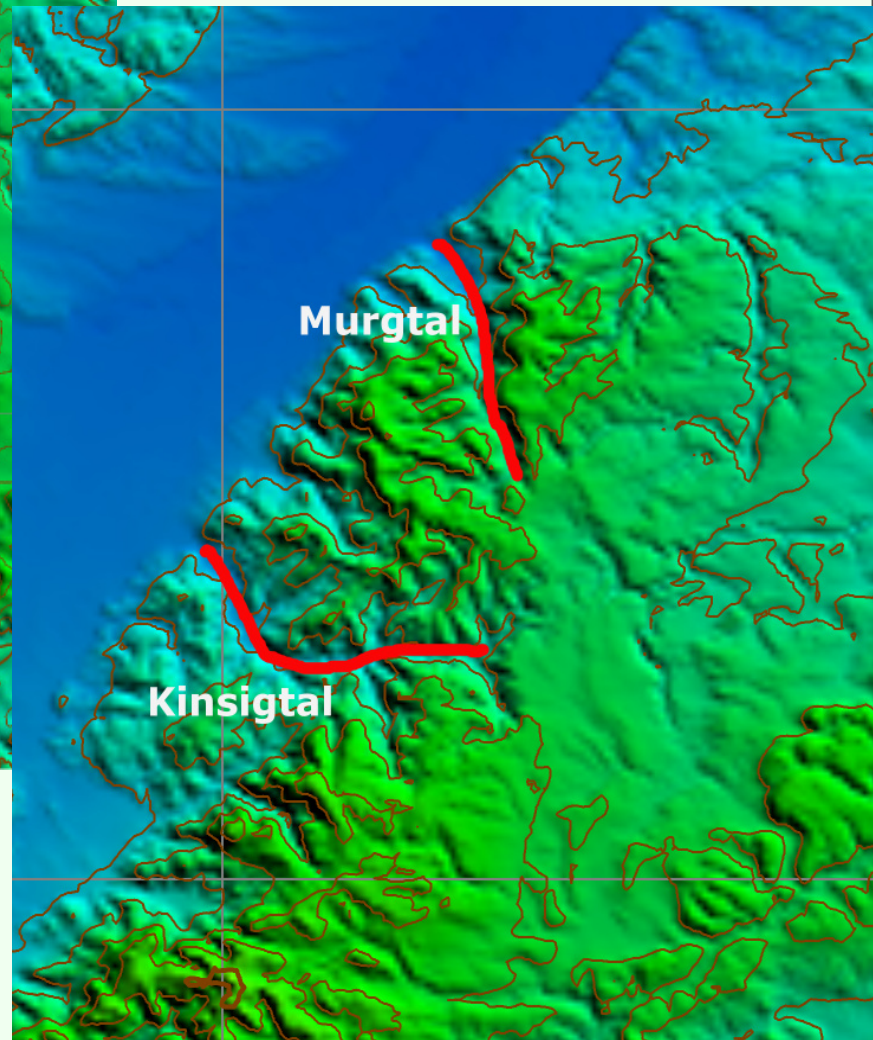
COPS Region





The Rhine Valley

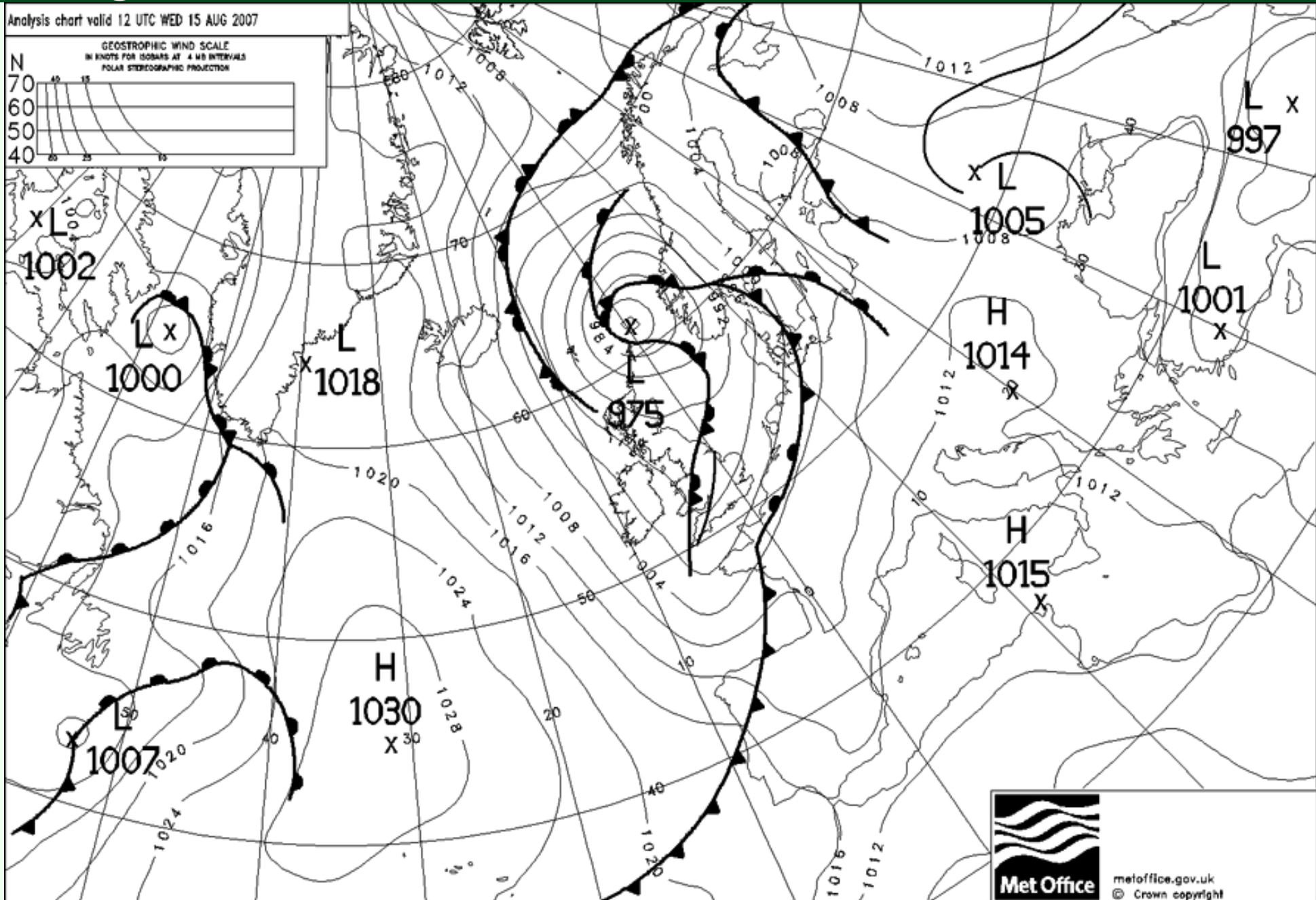
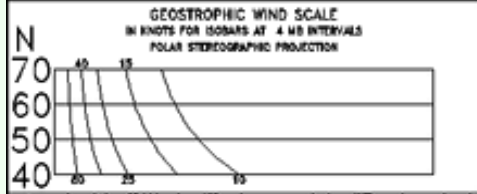
The main valleys studied during COPS



Murgtal

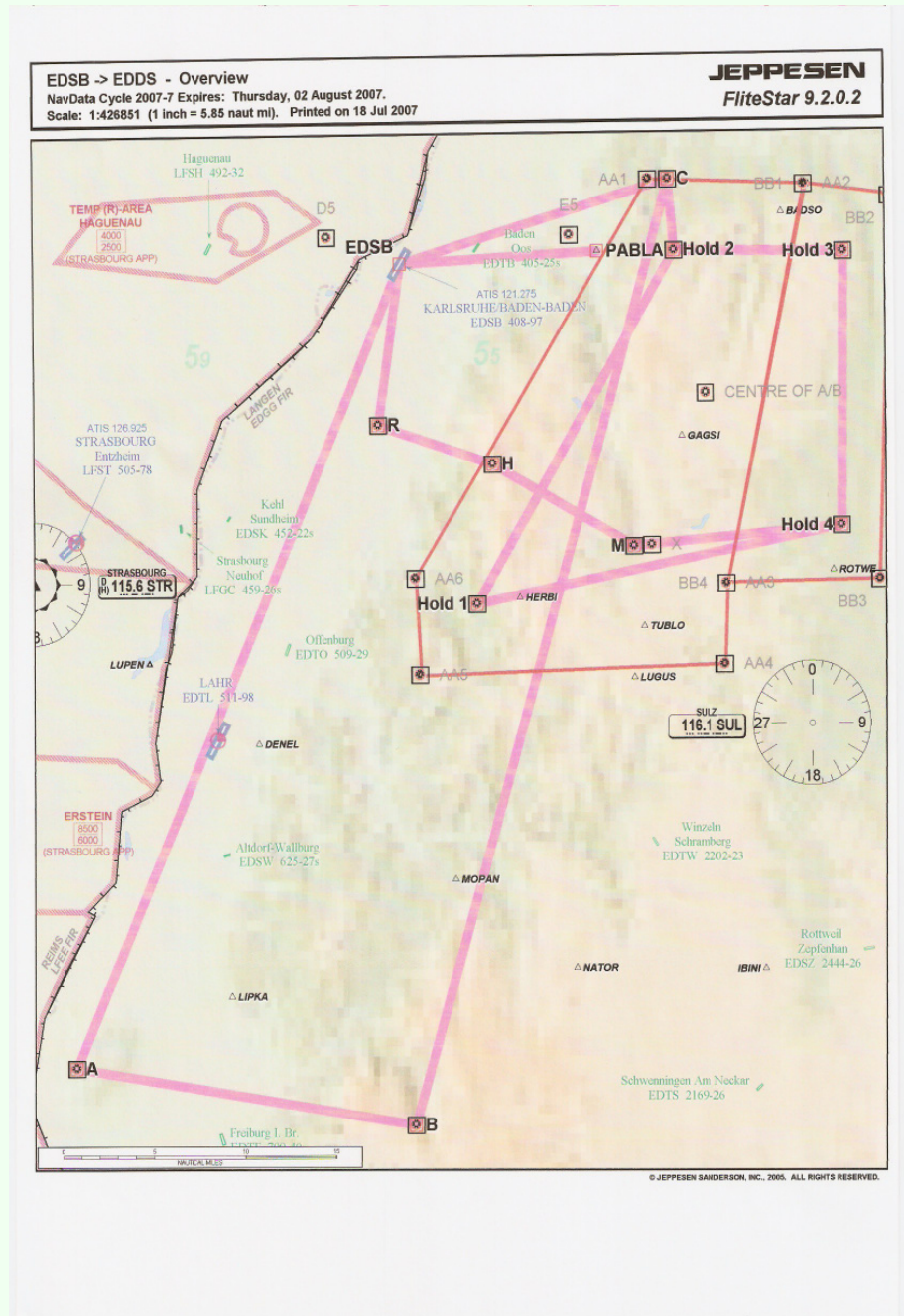
Kinsigtal

Analysis chart valid 12 UTC WED 15 AUG 2007

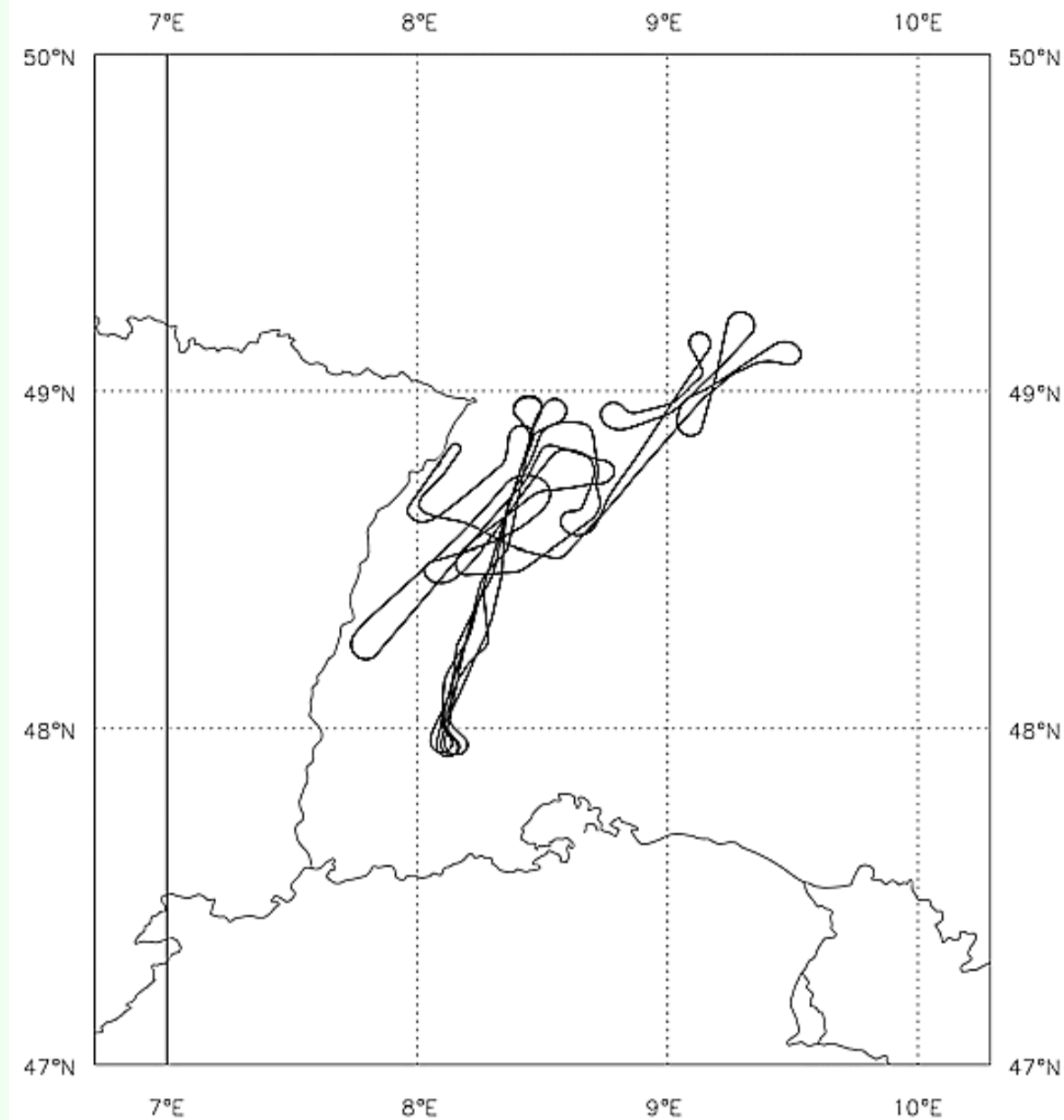


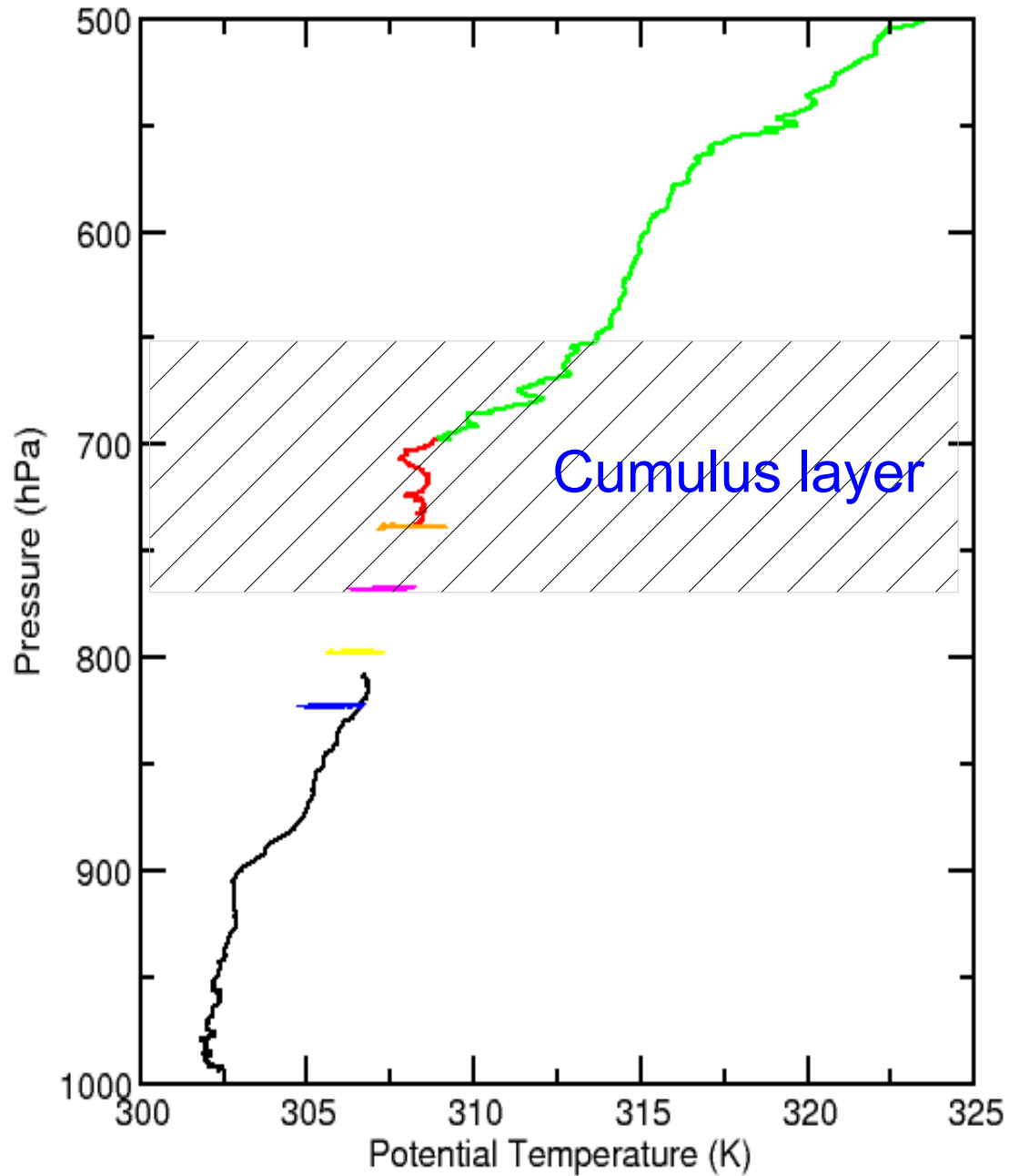
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Flight Planning



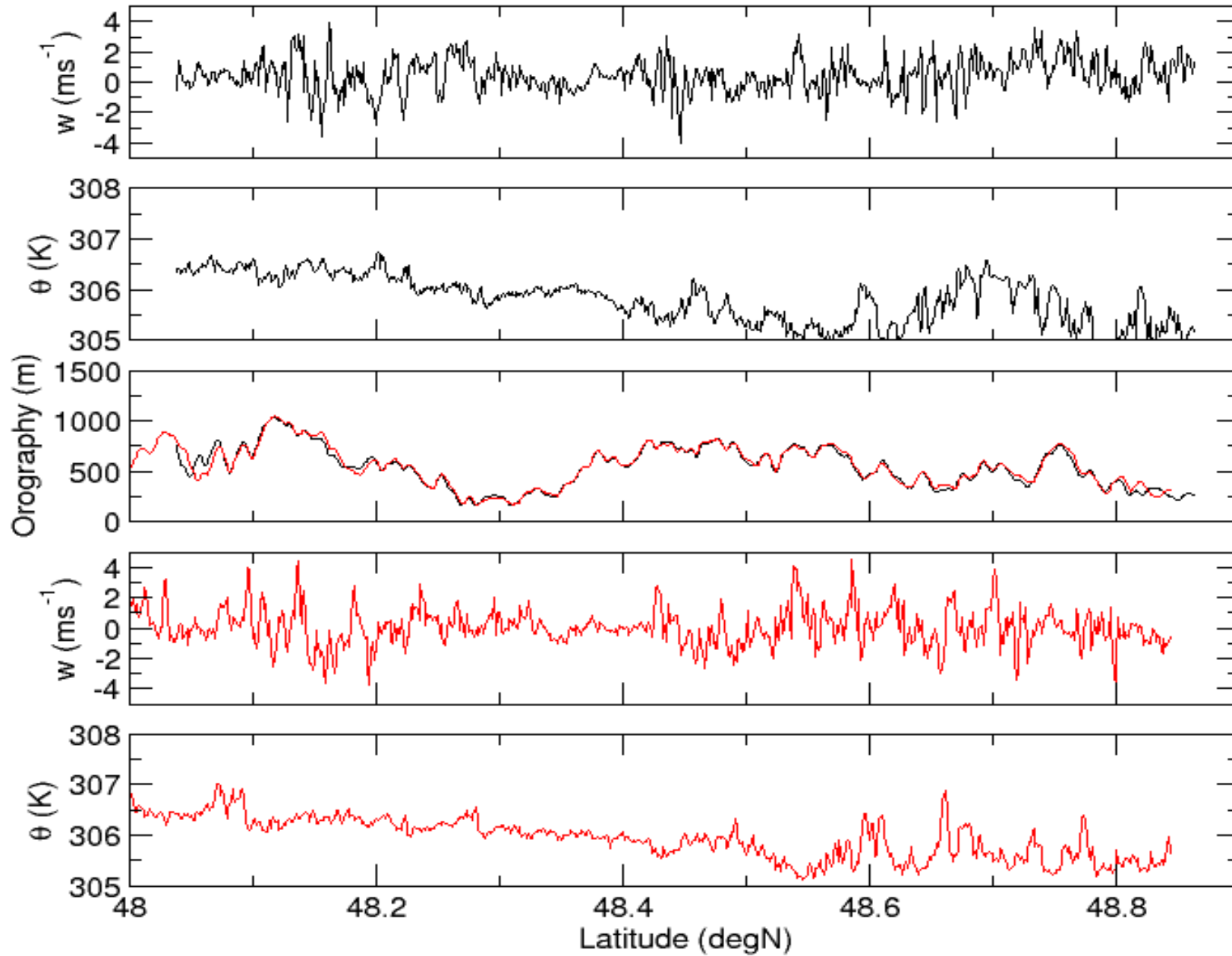
B317 Track 15-AUG-07





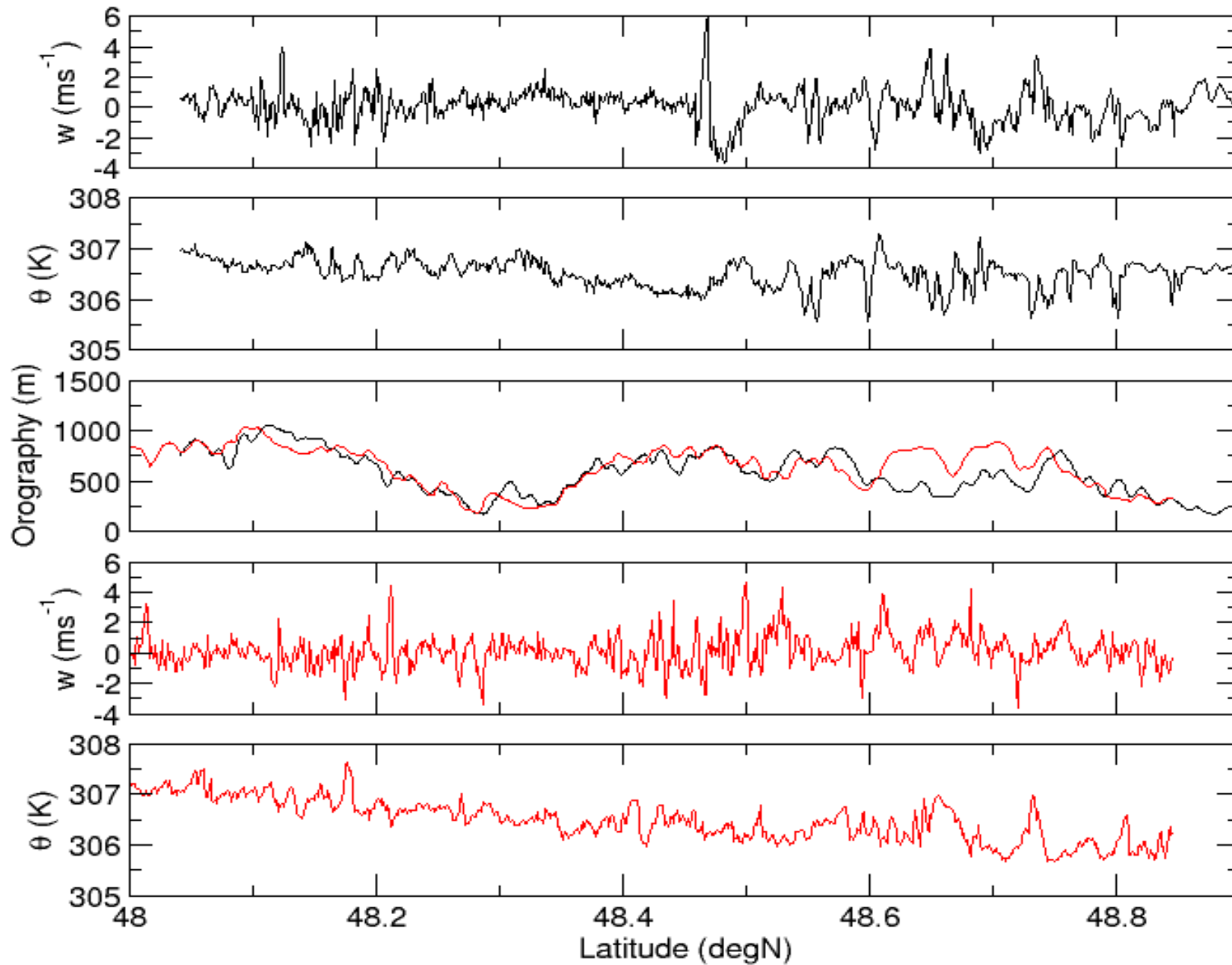
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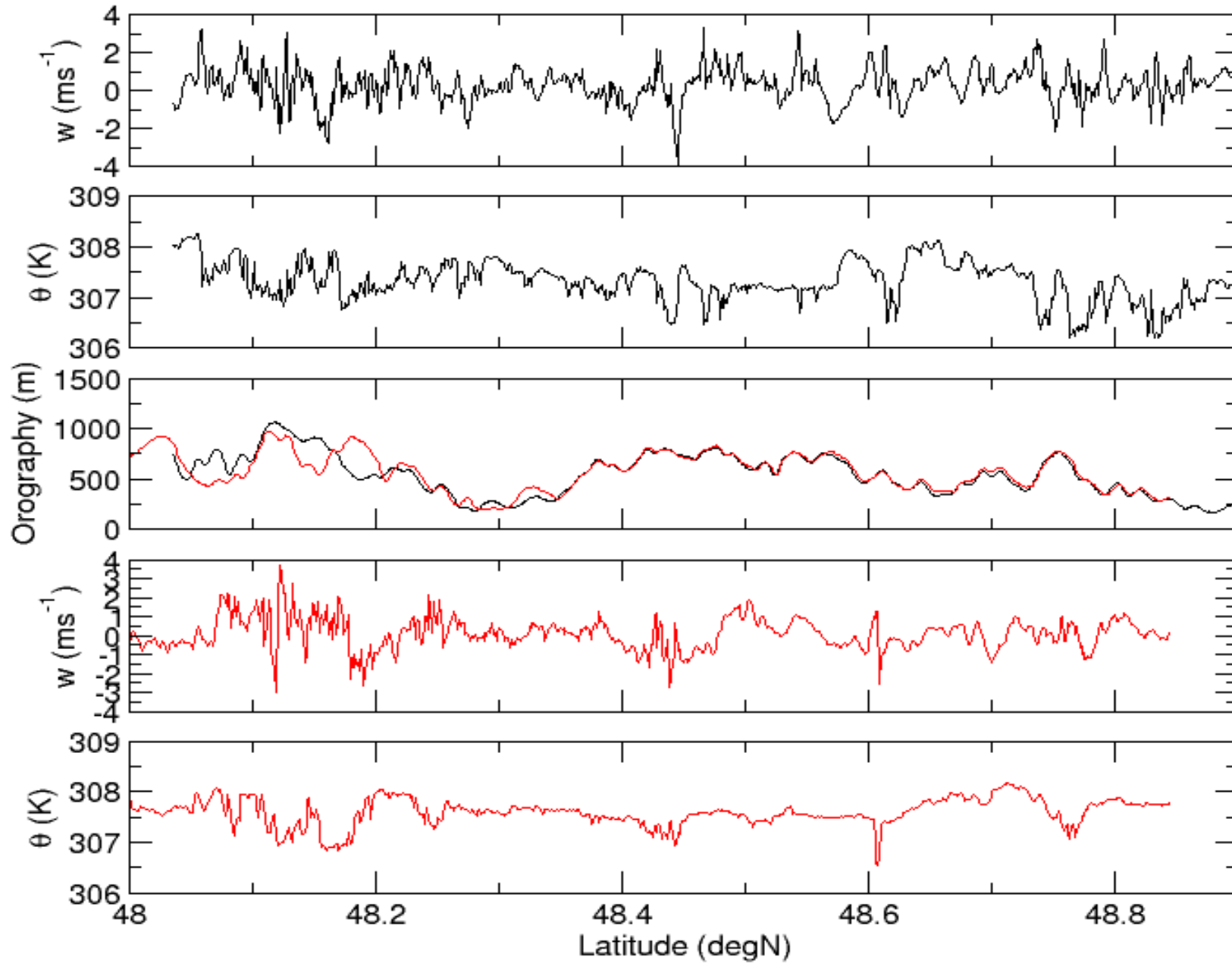
5500 ft asl (1675m)





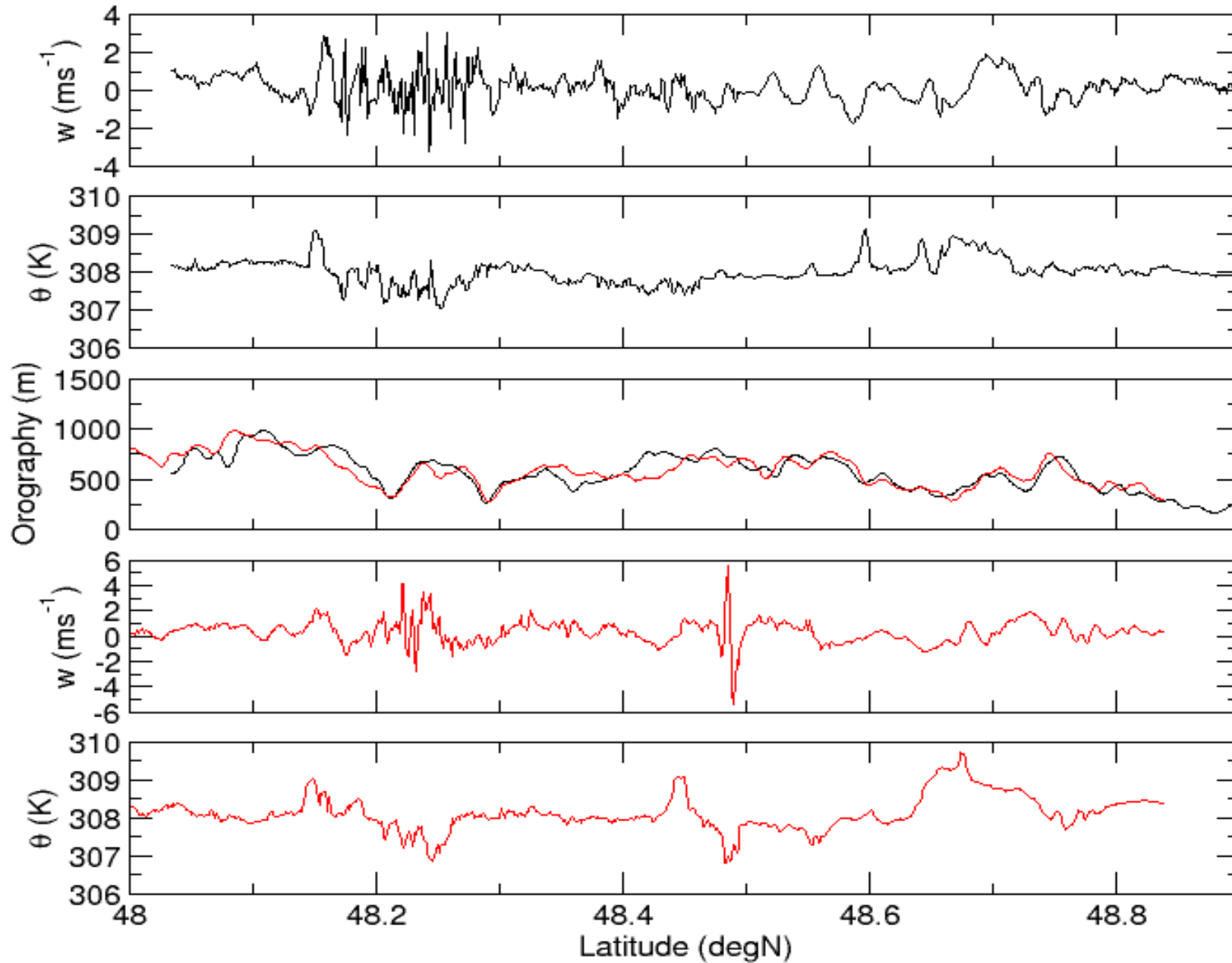
6500 ft asl (1980m)



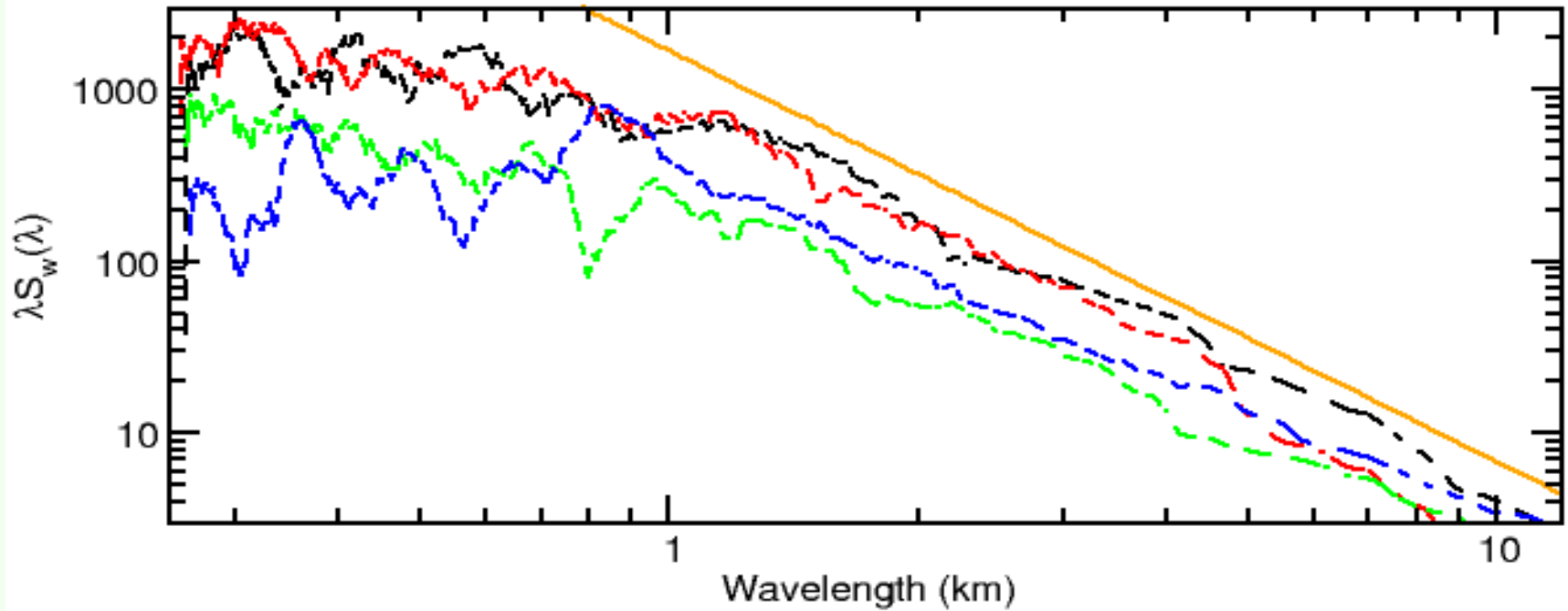
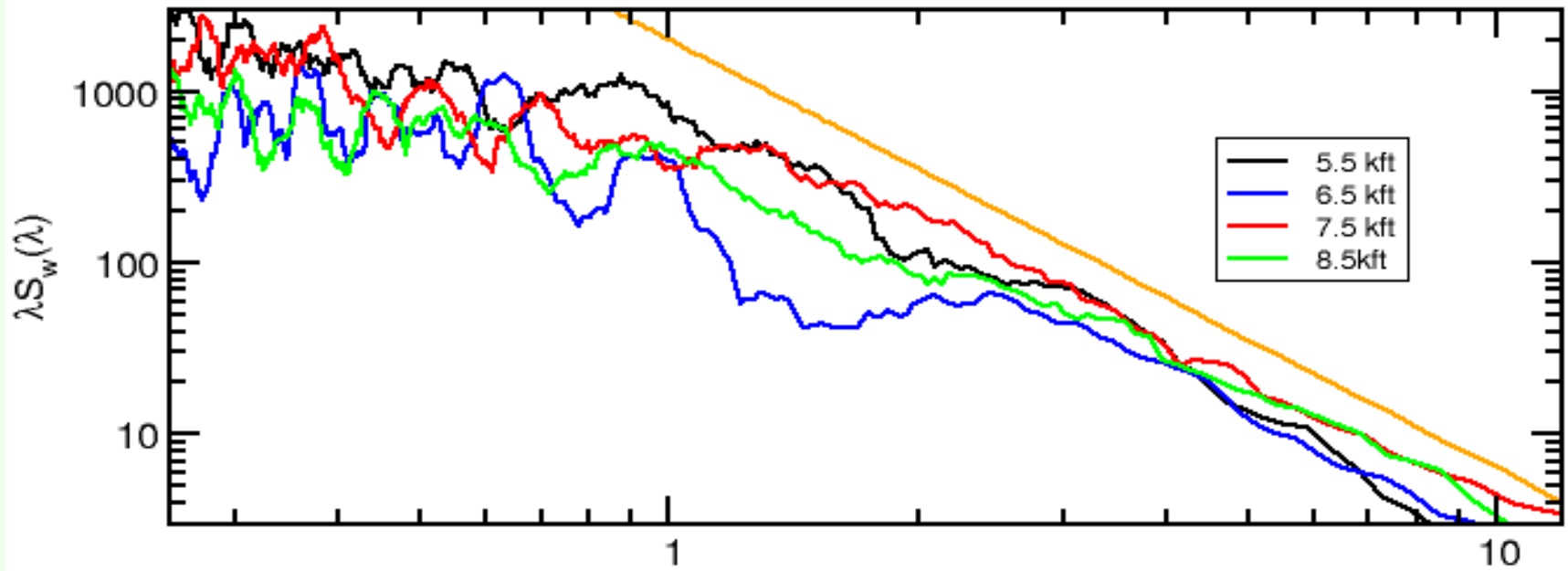


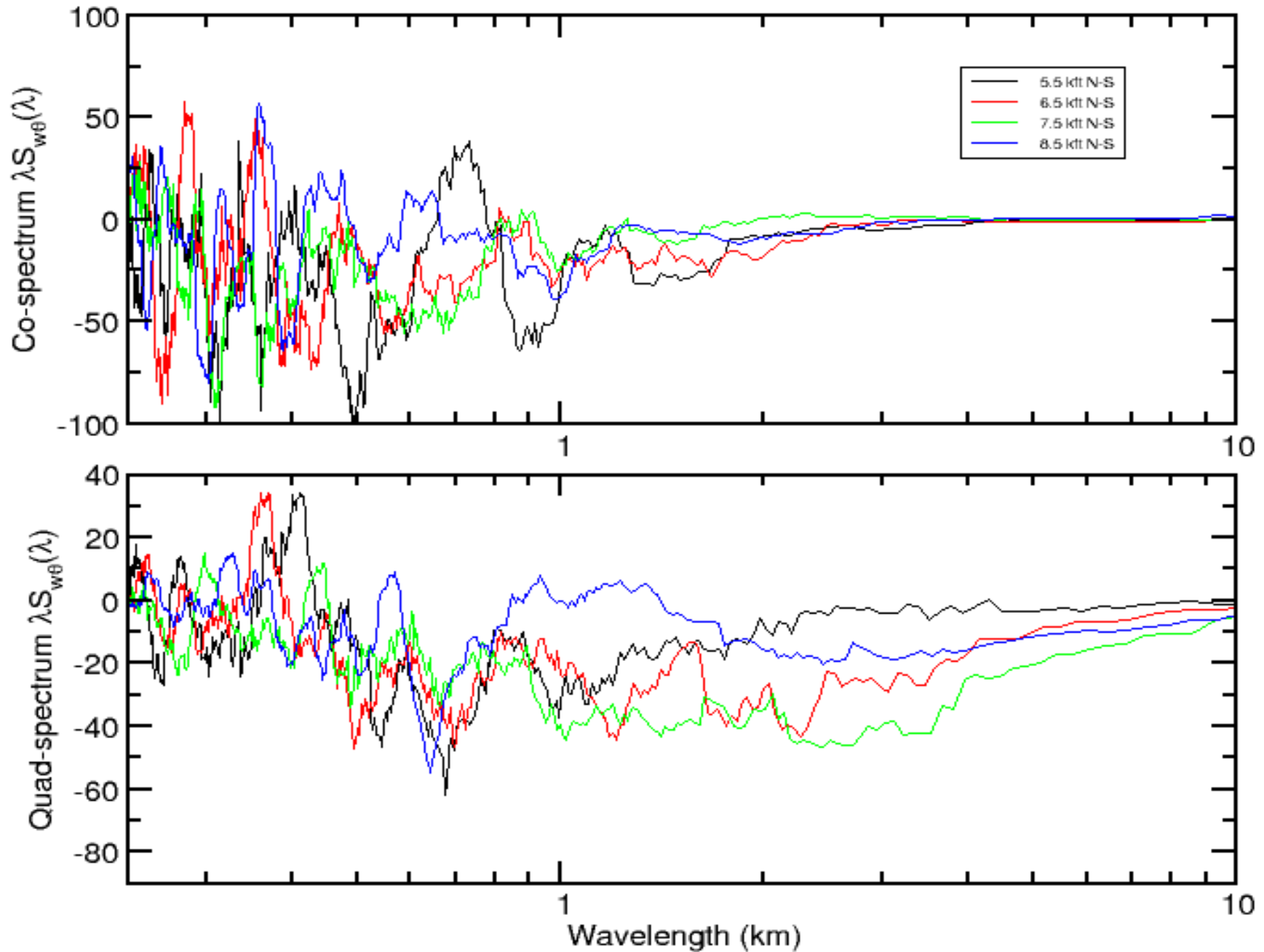
7500 ft asl (2475m)

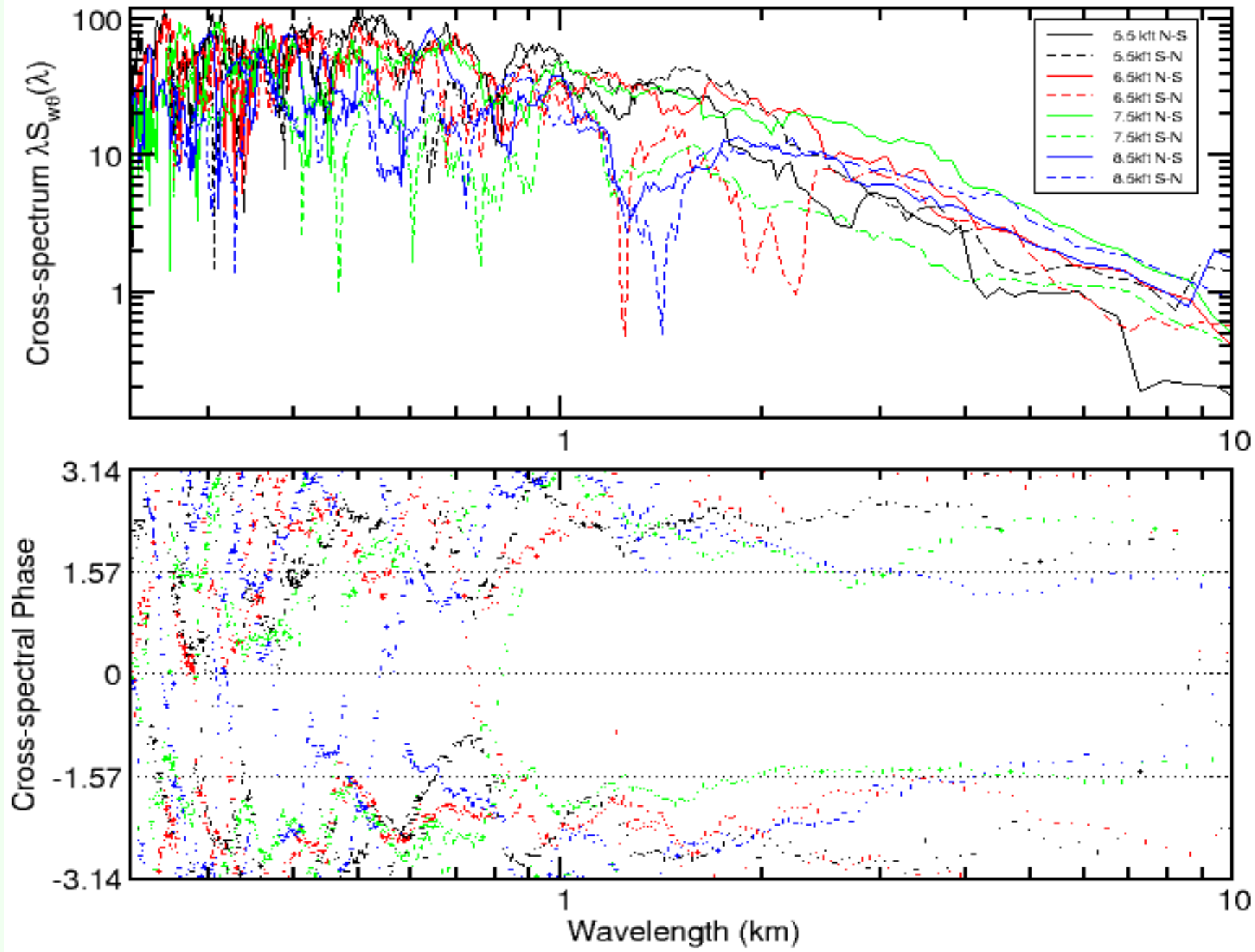


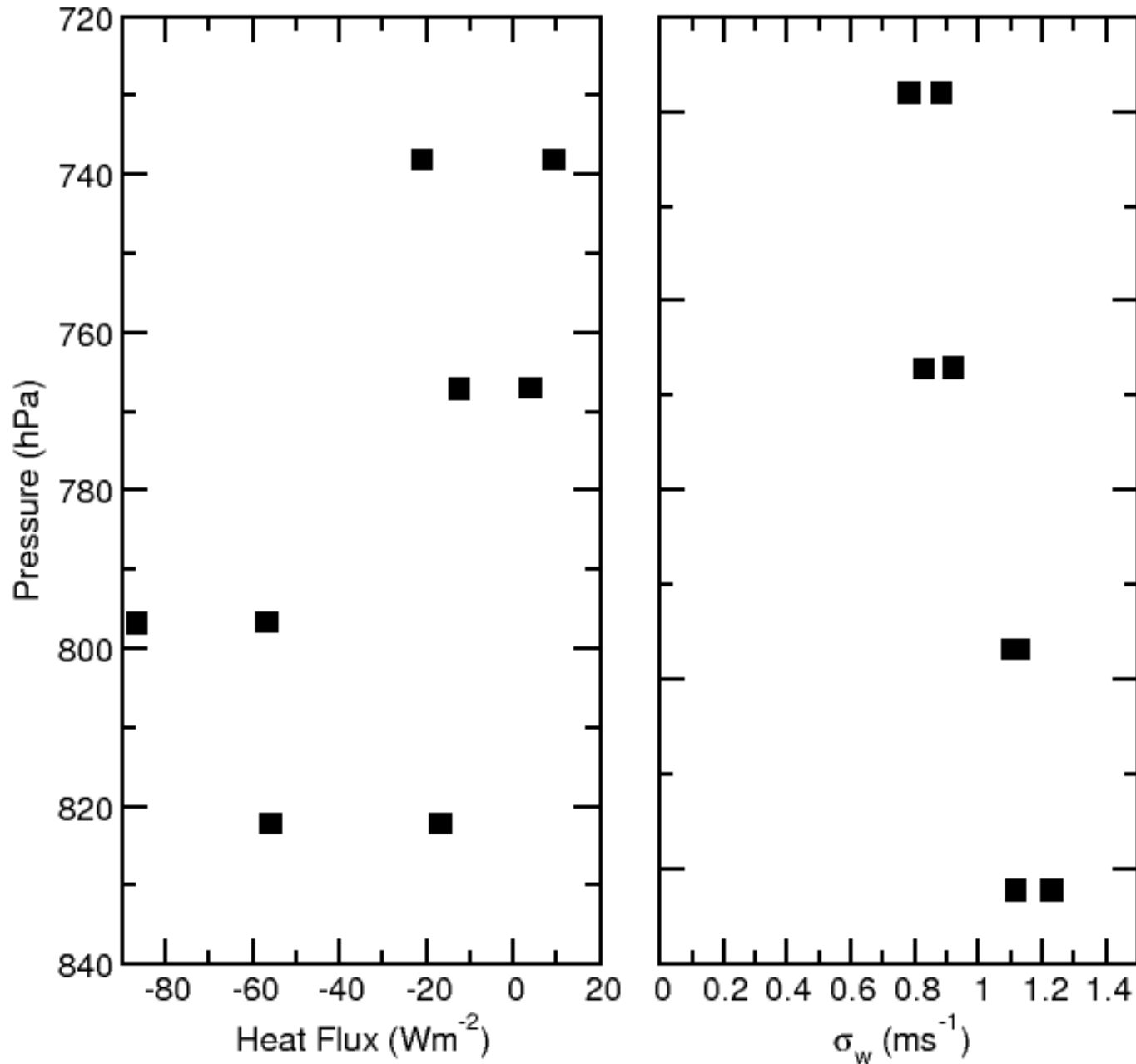


8500 ft asl (2800m)

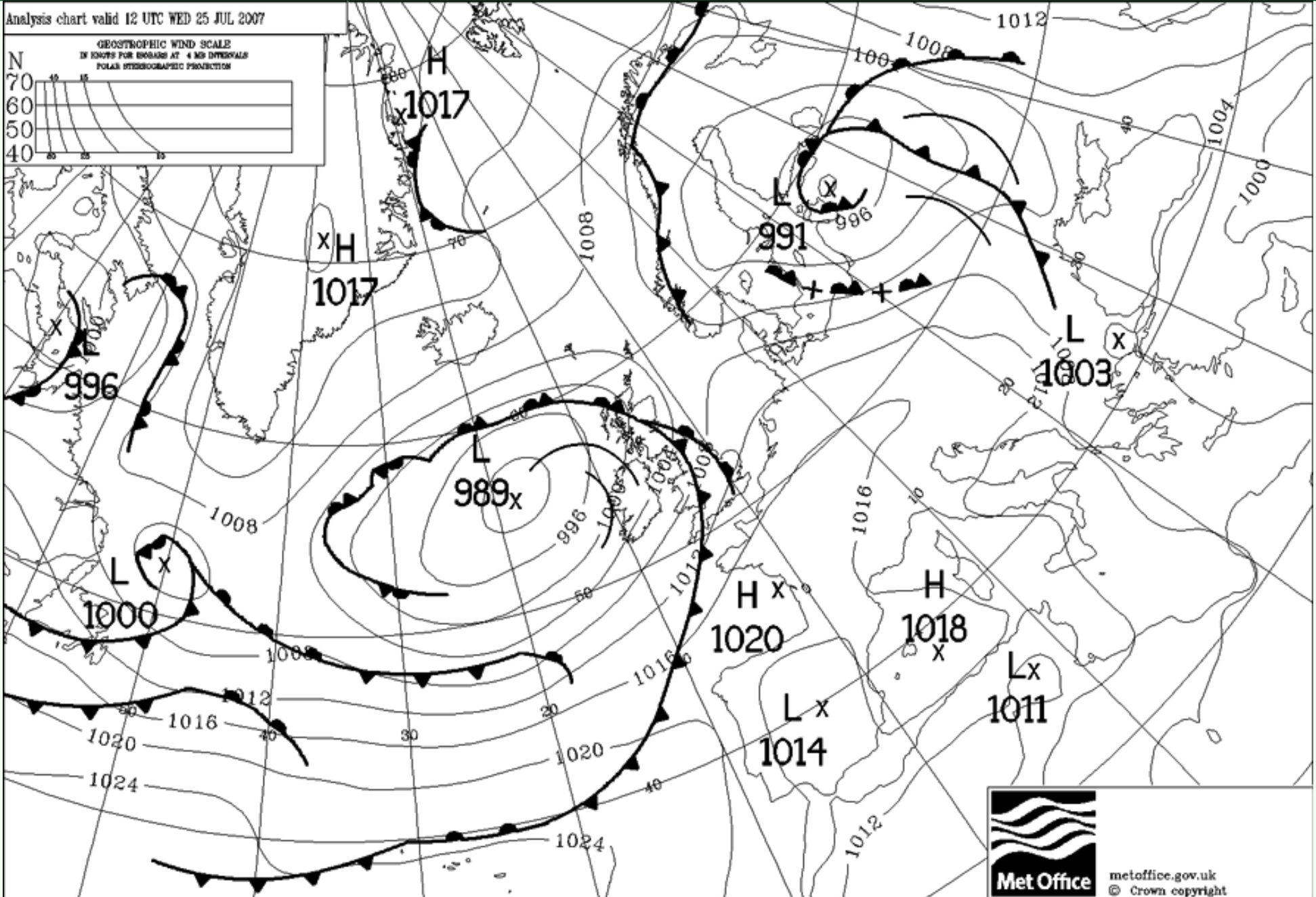
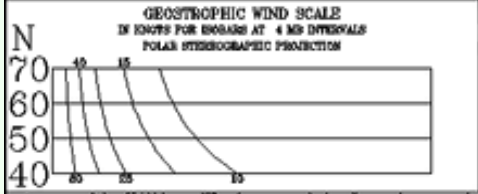






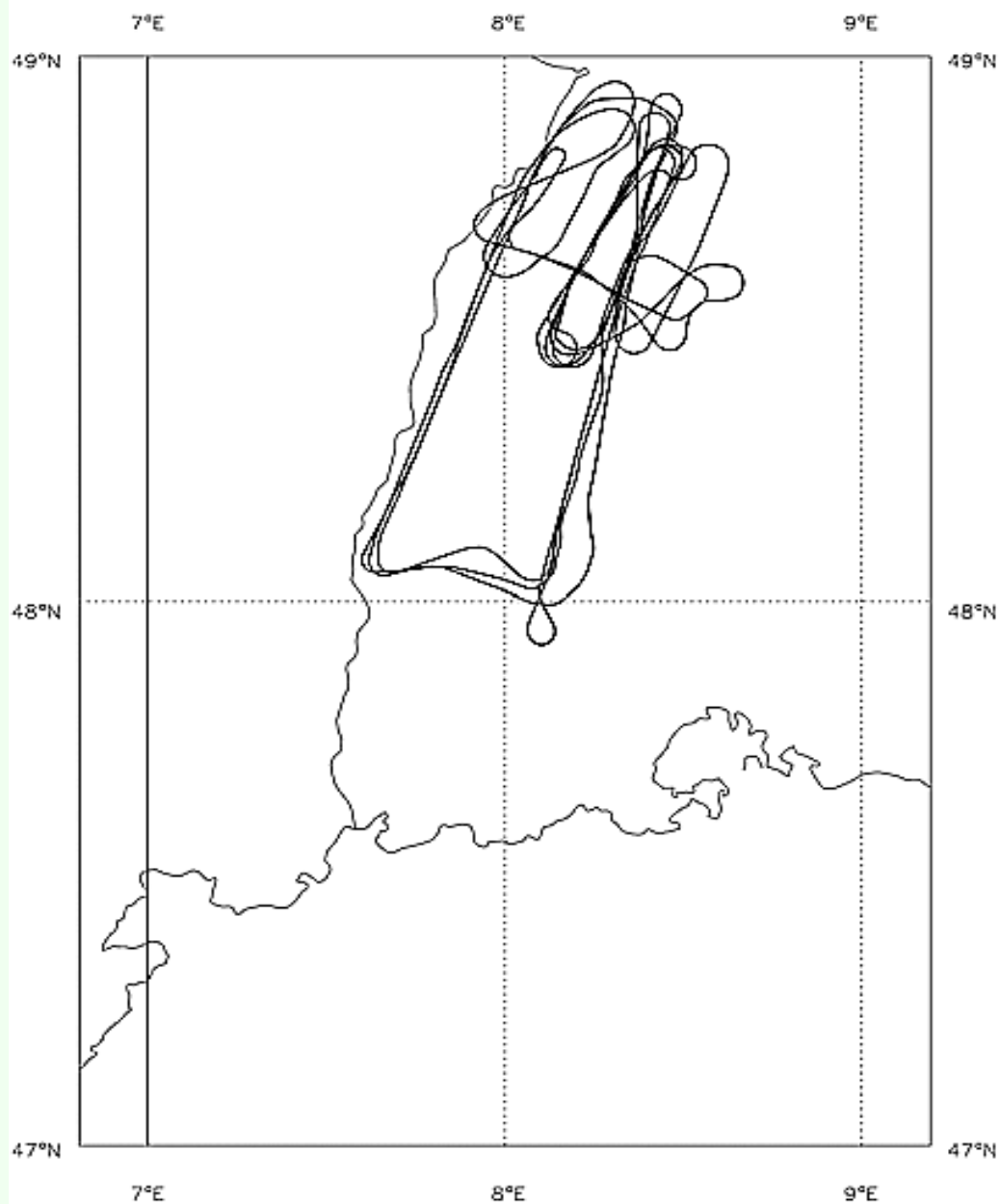


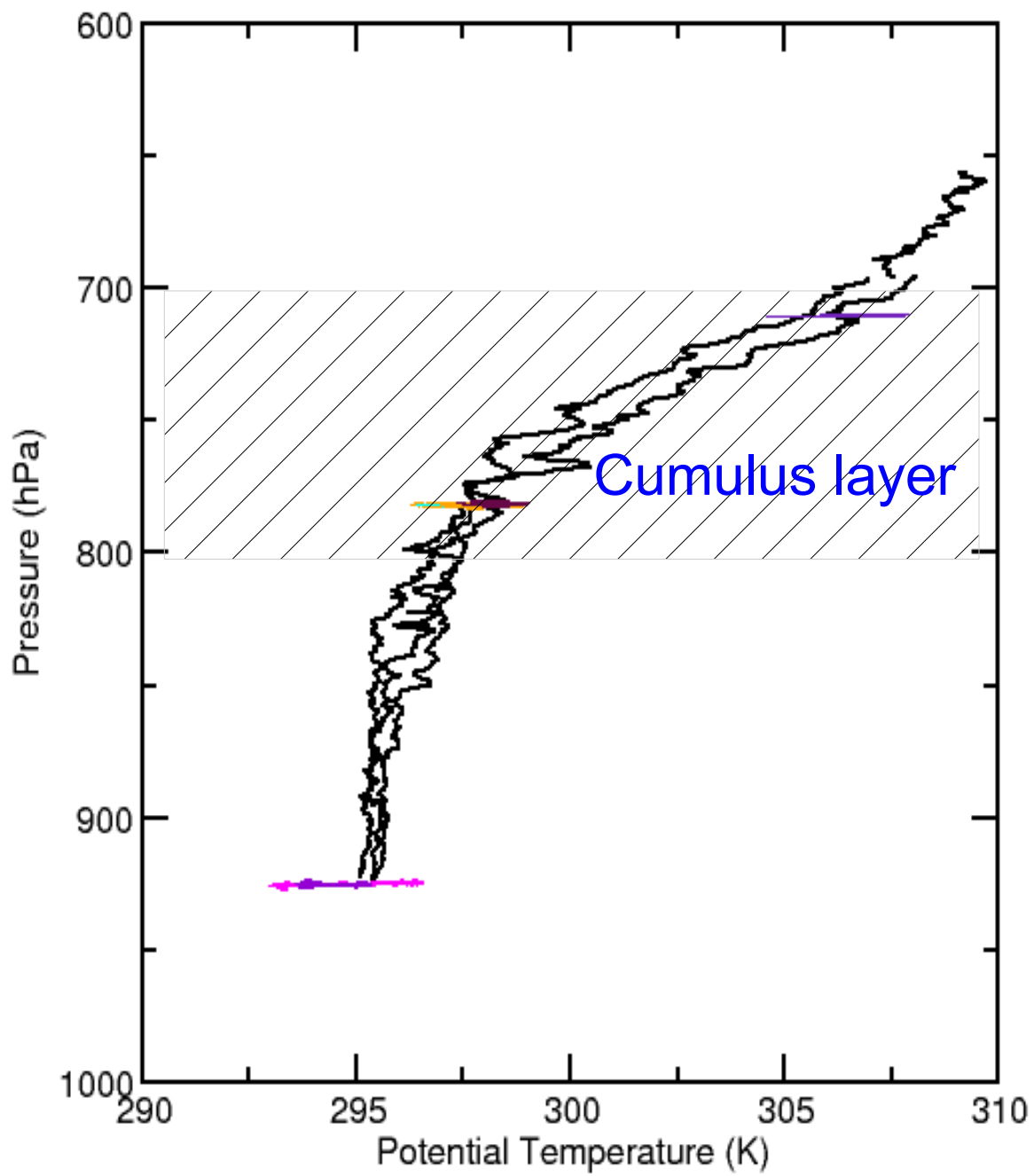
Analysis chart valid 12 UTC WED 25 JUL 2007

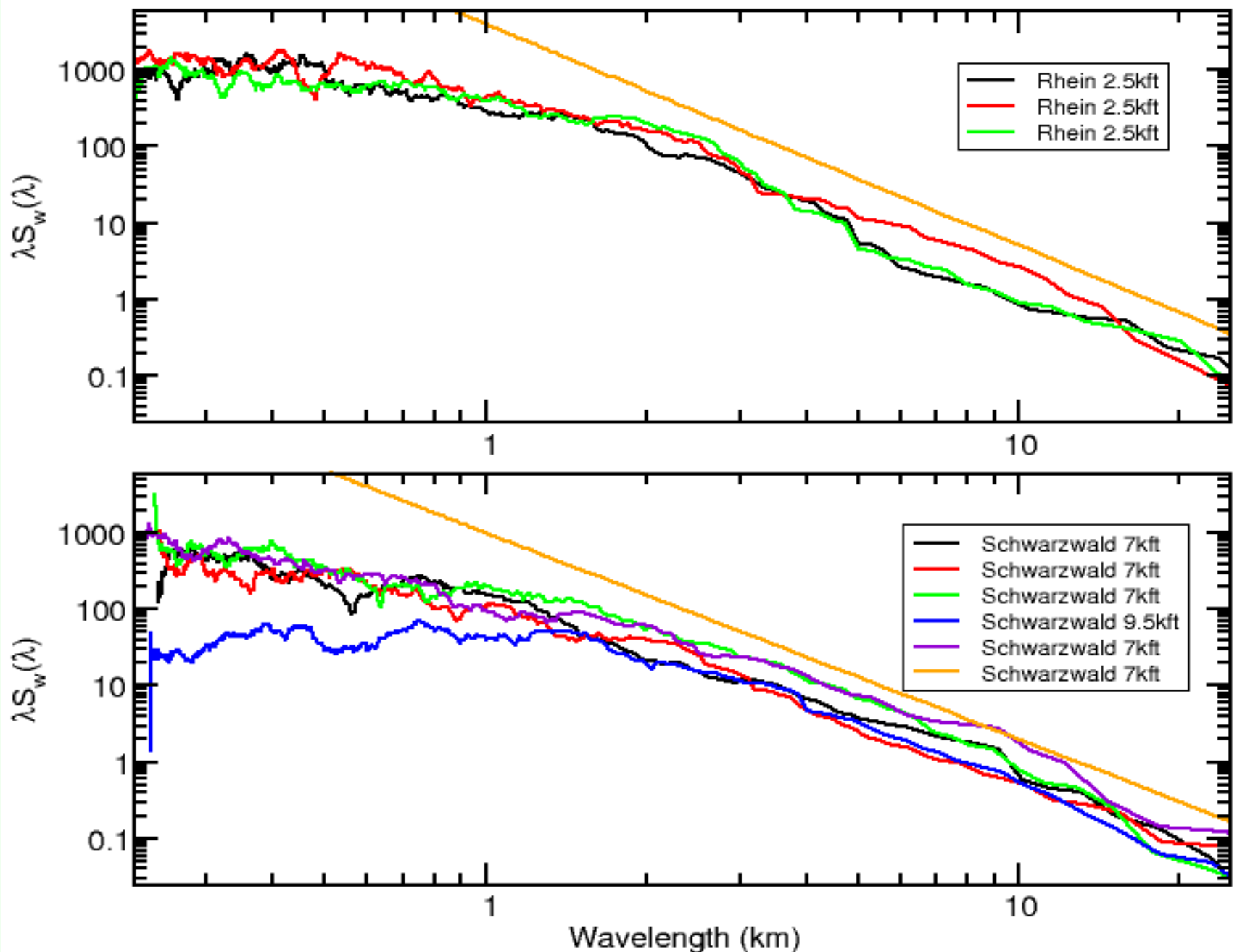


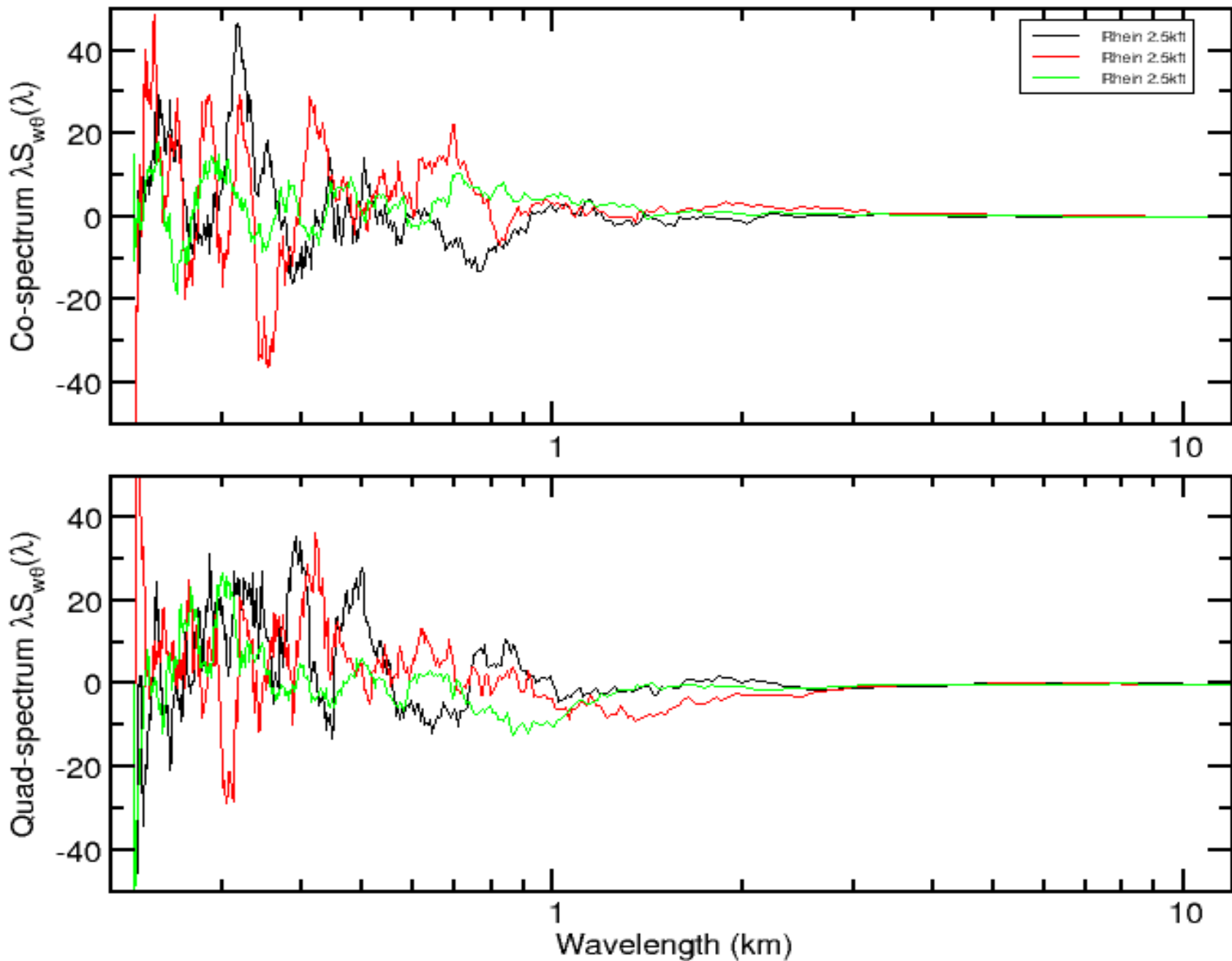
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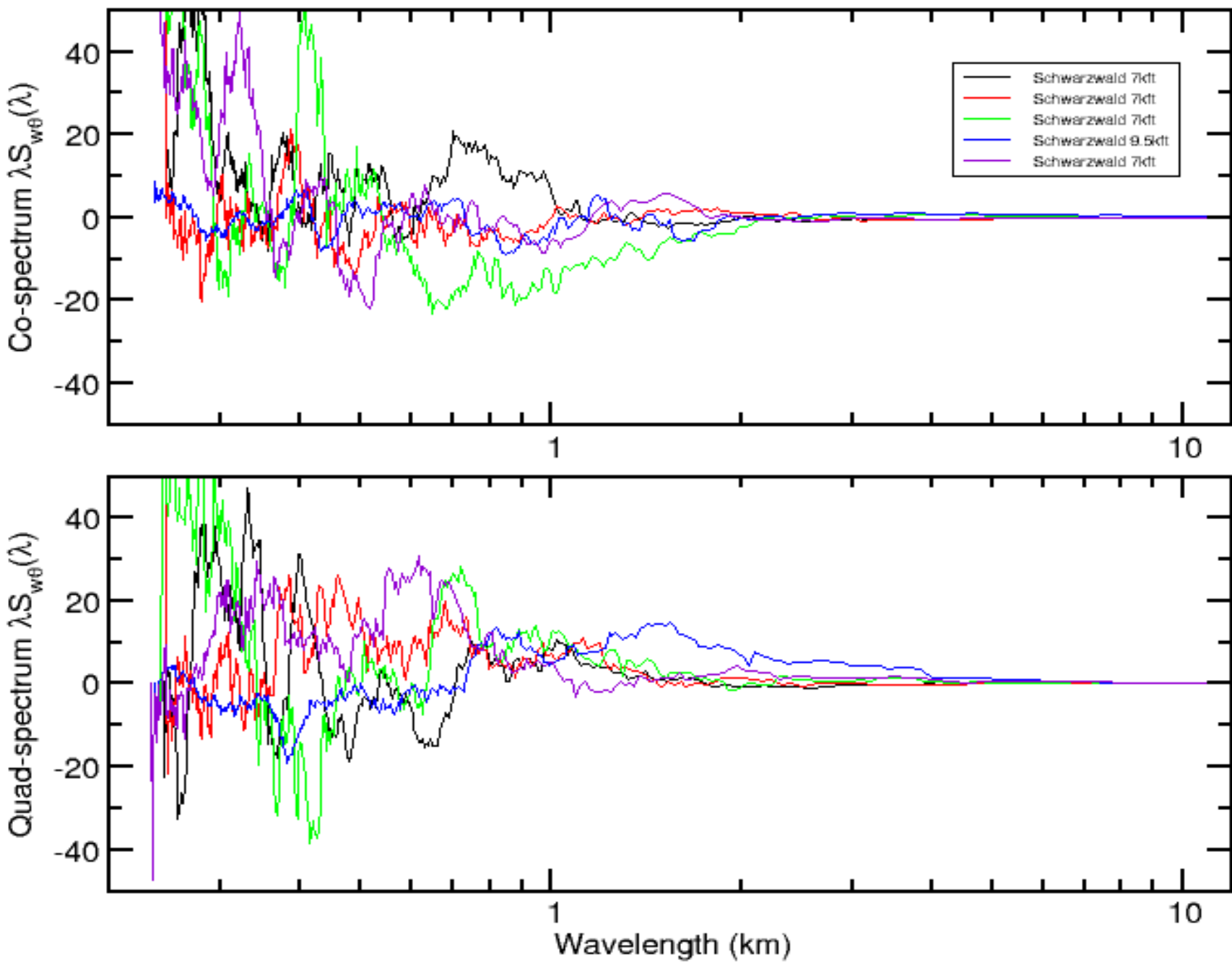
B311 Track 25-JUL-07



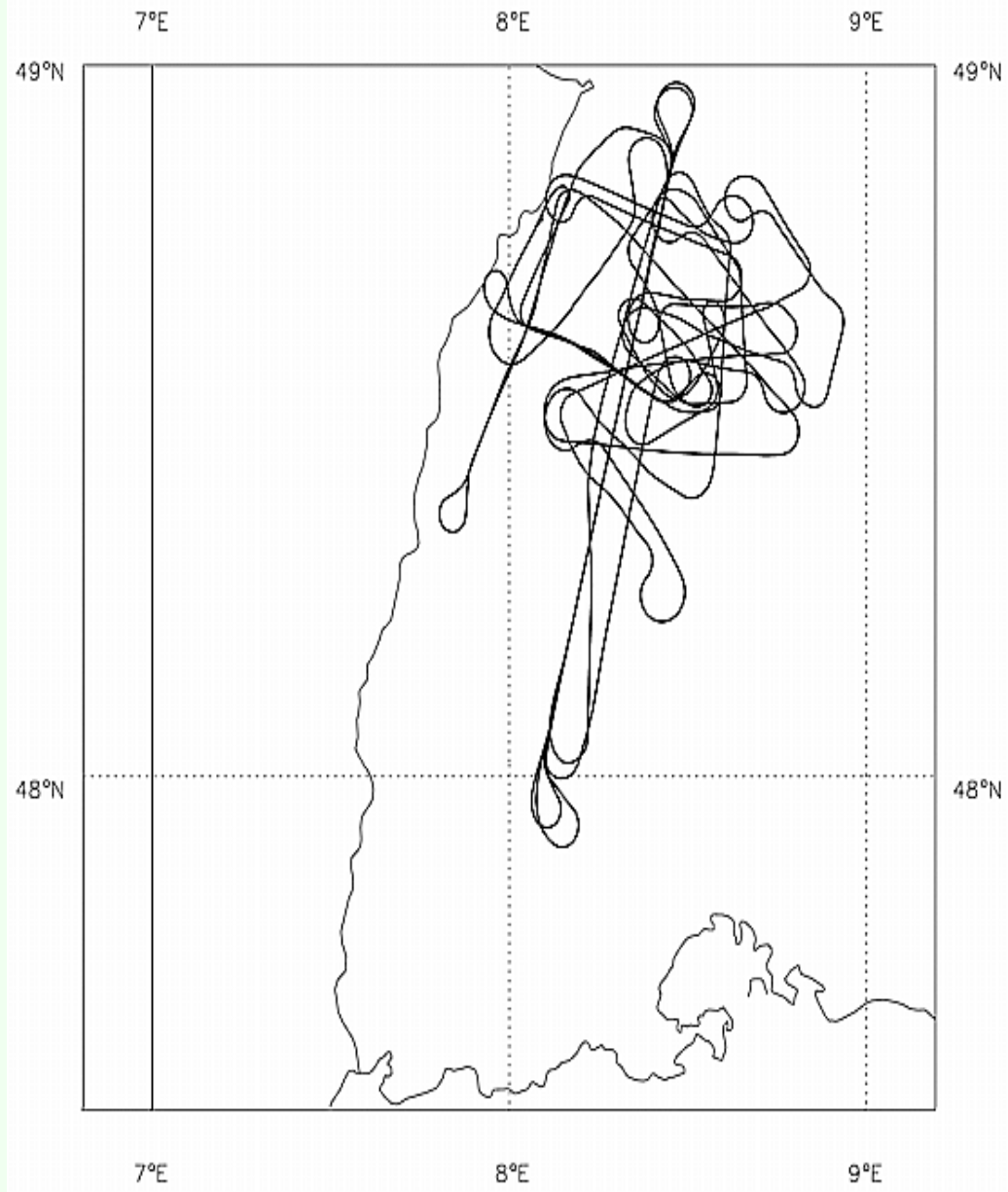




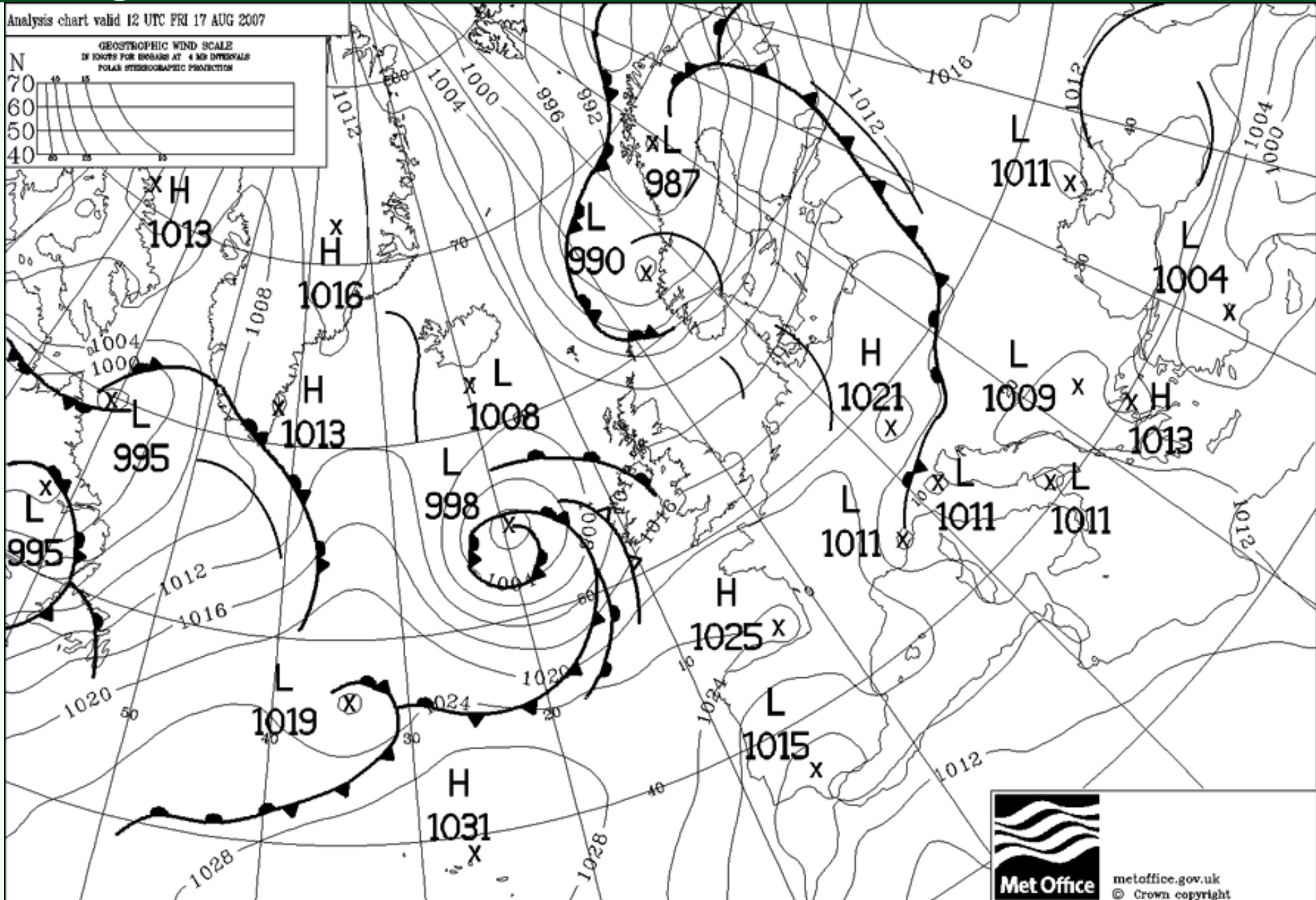
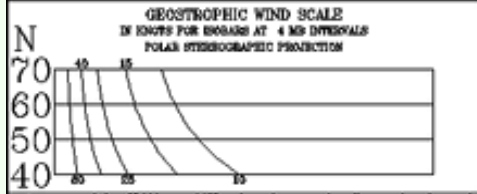




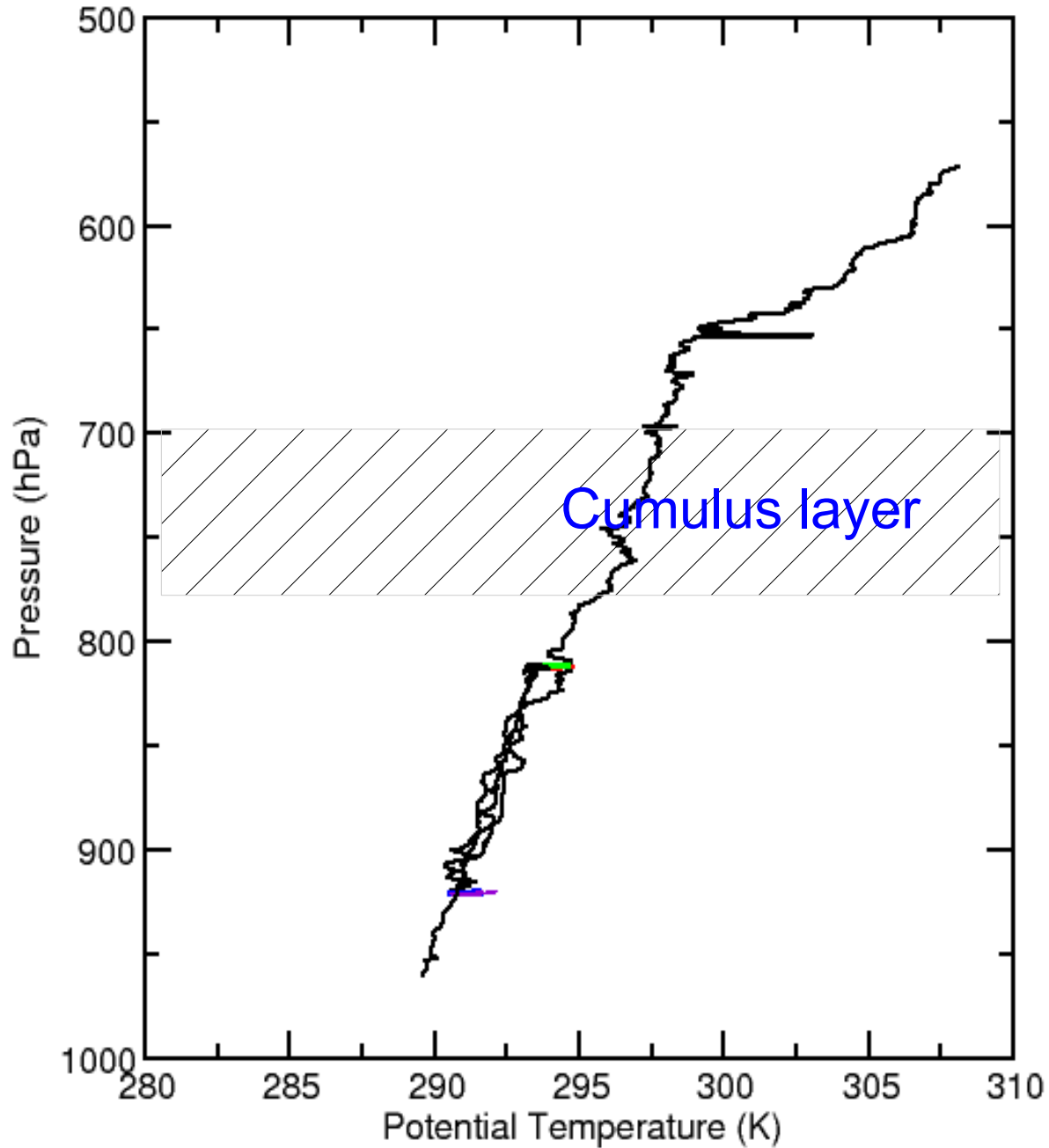
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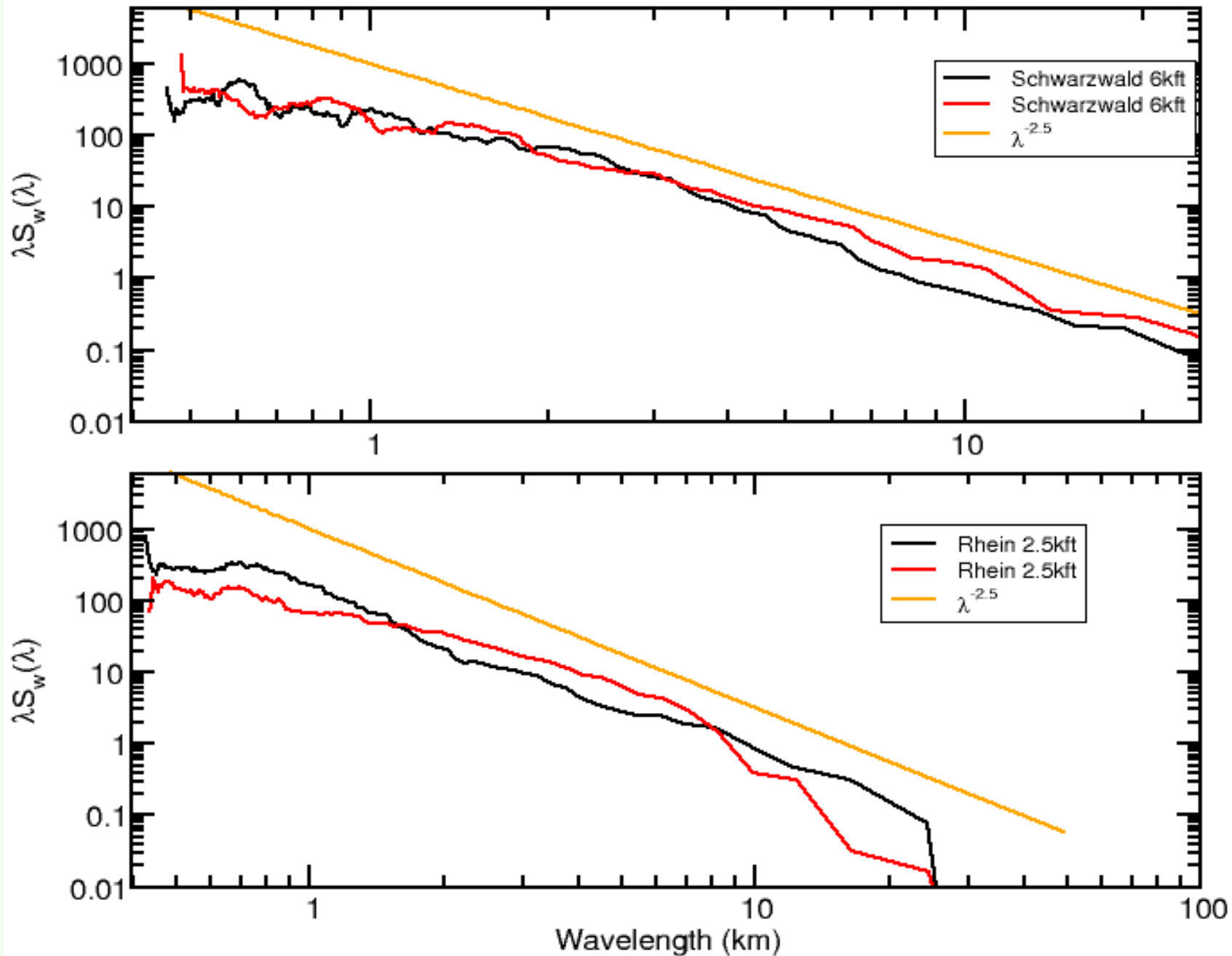


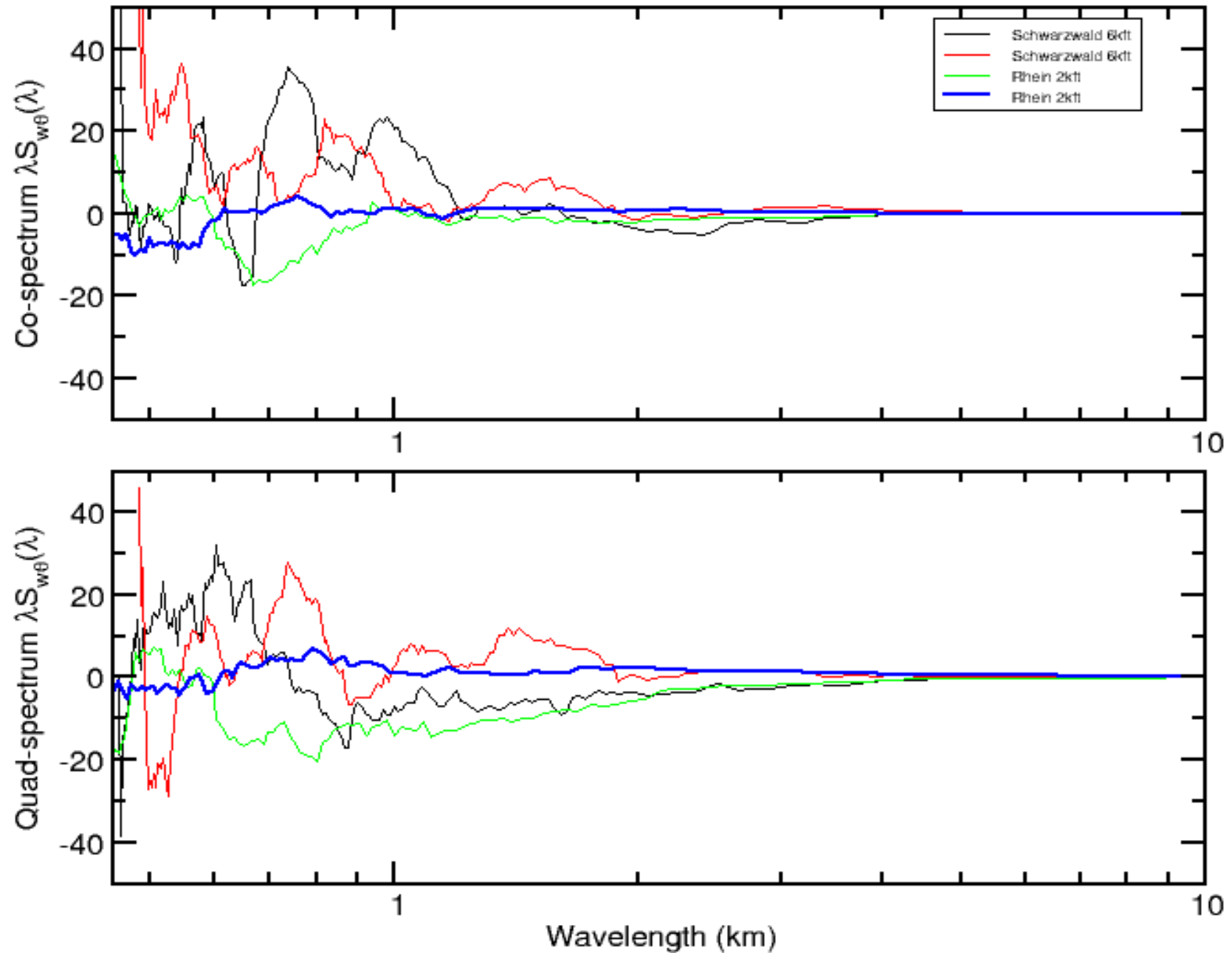
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- ❑ Boundary-layer Observations mainly concerned weakly stable cumulus topped conditions
- ❑ σ_w and heat flux tend to decrease towards the top of the boundary layer where turbulence consists of more isolated large eddies
- ❑ At larger horizontal scales ($>$ few km) turbulence has the characteristics of gravity waves
- ❑ Disturbances are stronger over the mountains than over the plain but only at longer wavelengths ($>$ few km)
- ❑ Greater evidence of gravity waves over the mountains than over the plain.