



# First analysis of RS92-RS41 GDP intercomparisons

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# GRUAN RS92-RS41 twin soundings

Deutscher Wetterdienst  
Wetter und Klima aus einer Hand



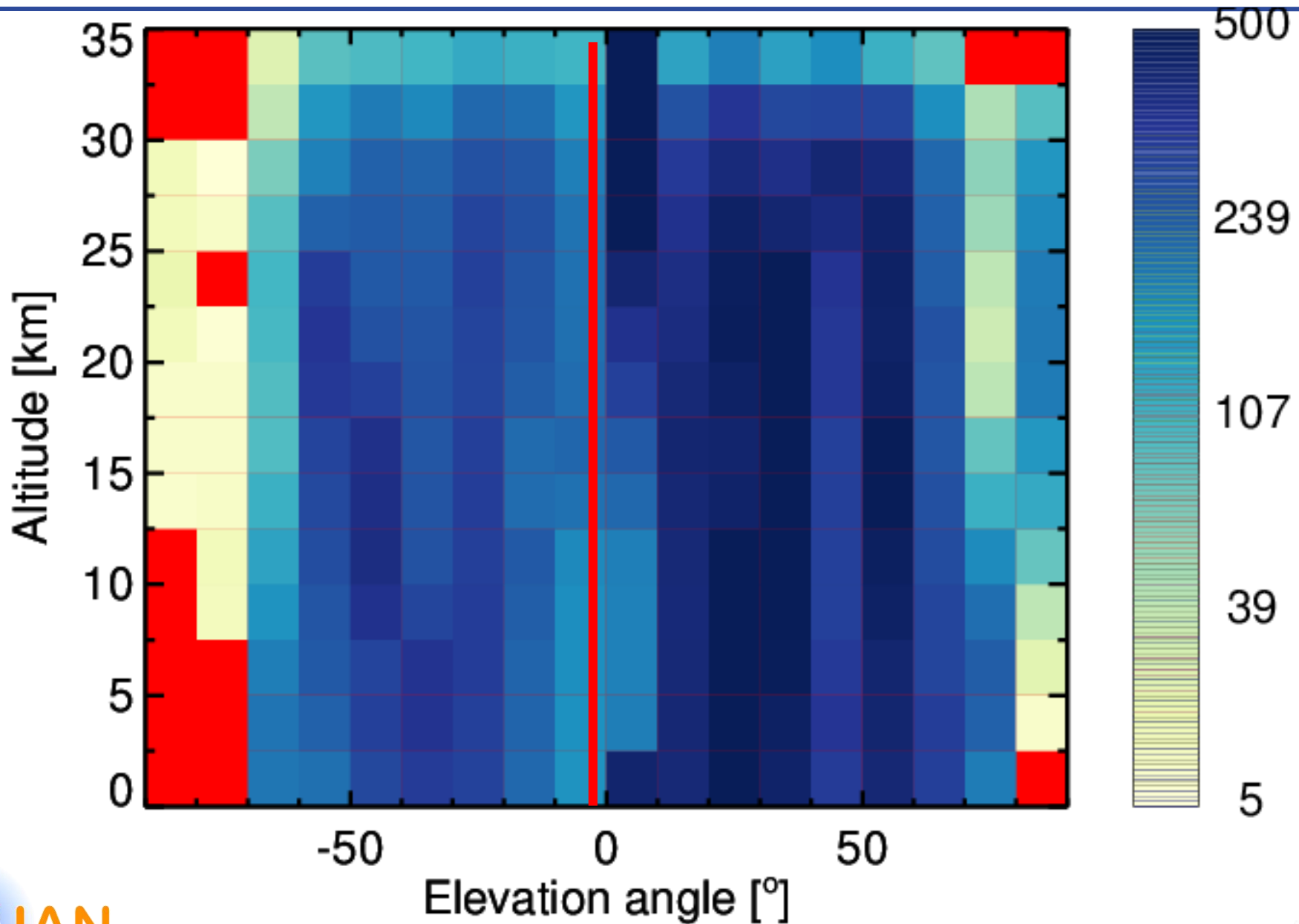
Site	Soundings
Beltsville	146
Camborne	64
Darwin	54
Graciosa	26
Lamont	46
La Reunion	34
Lauder	51
Lindenberg	234
Ny Alesund	115
Payerne	136
St Helena	49
Tateno	10
<b>Total</b>	<b>965</b>



St Helena, Lauder daytime only

# Coverage of solar elevation angles

Deutscher Wetterdienst  
Wetter und Klima aus einer Hand



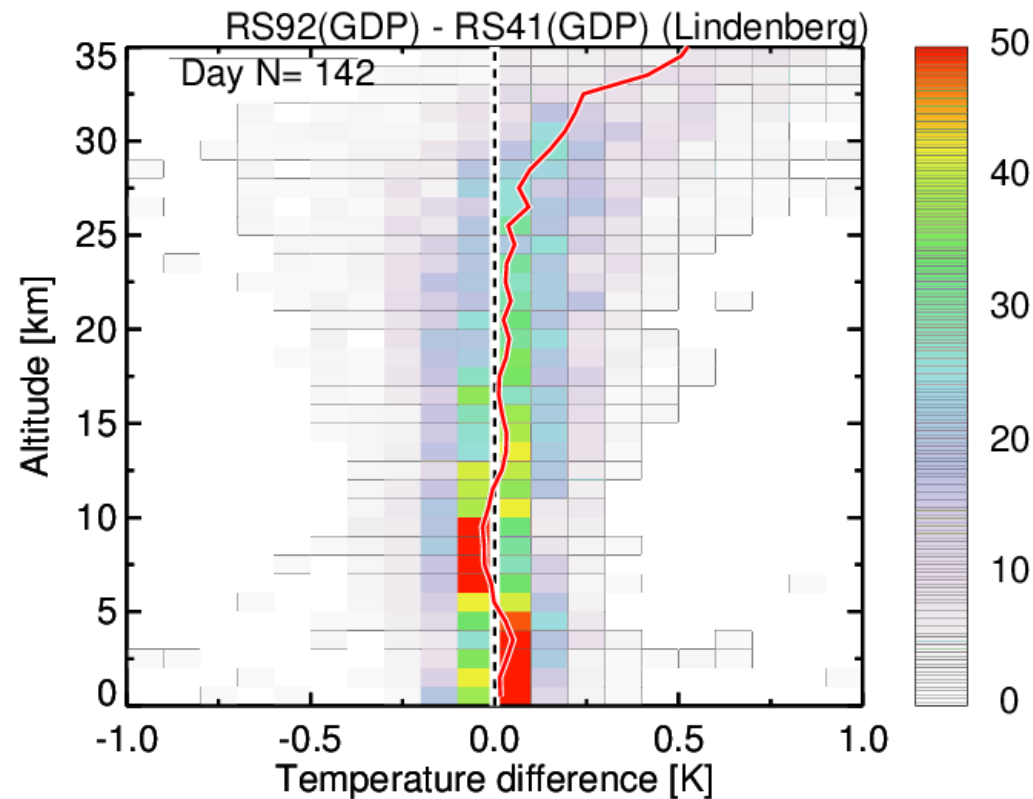
# Temperature – Lindenberg

## RS92 GDP – RS41 GDP

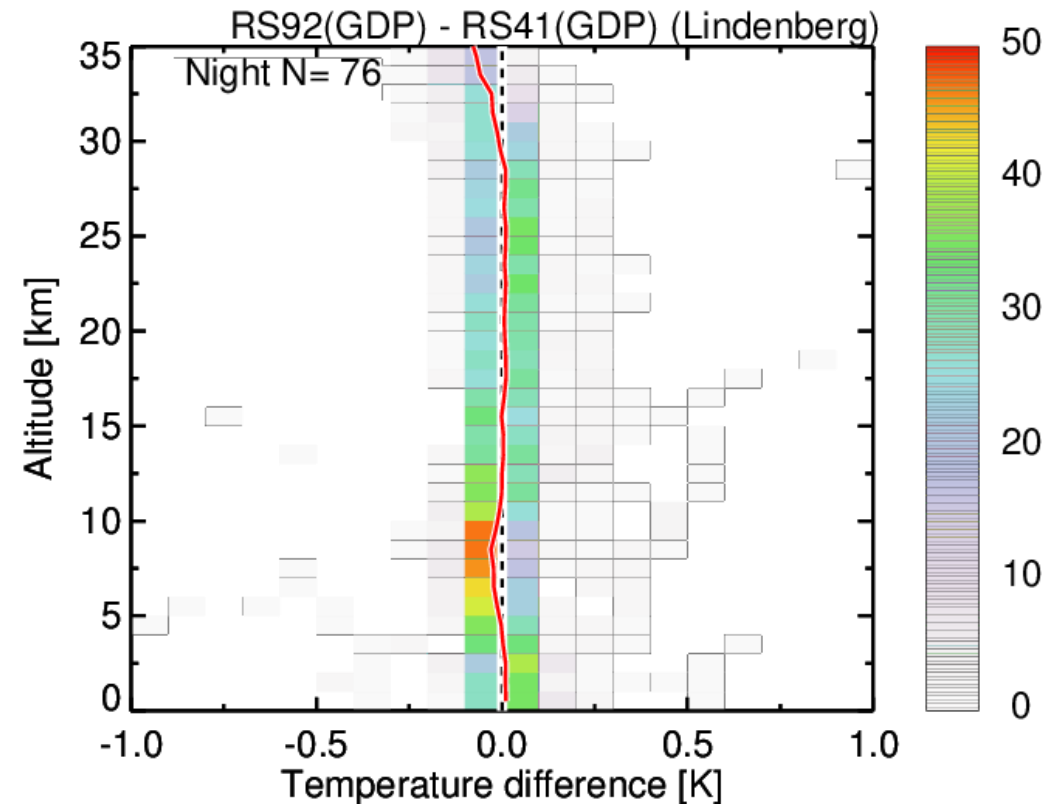
Deutscher Wetterdienst  
Wetter und Klima aus einer Hand



Day



Night



RS92 warmer than RS41 > 25km

# Temperature – Lindenberg

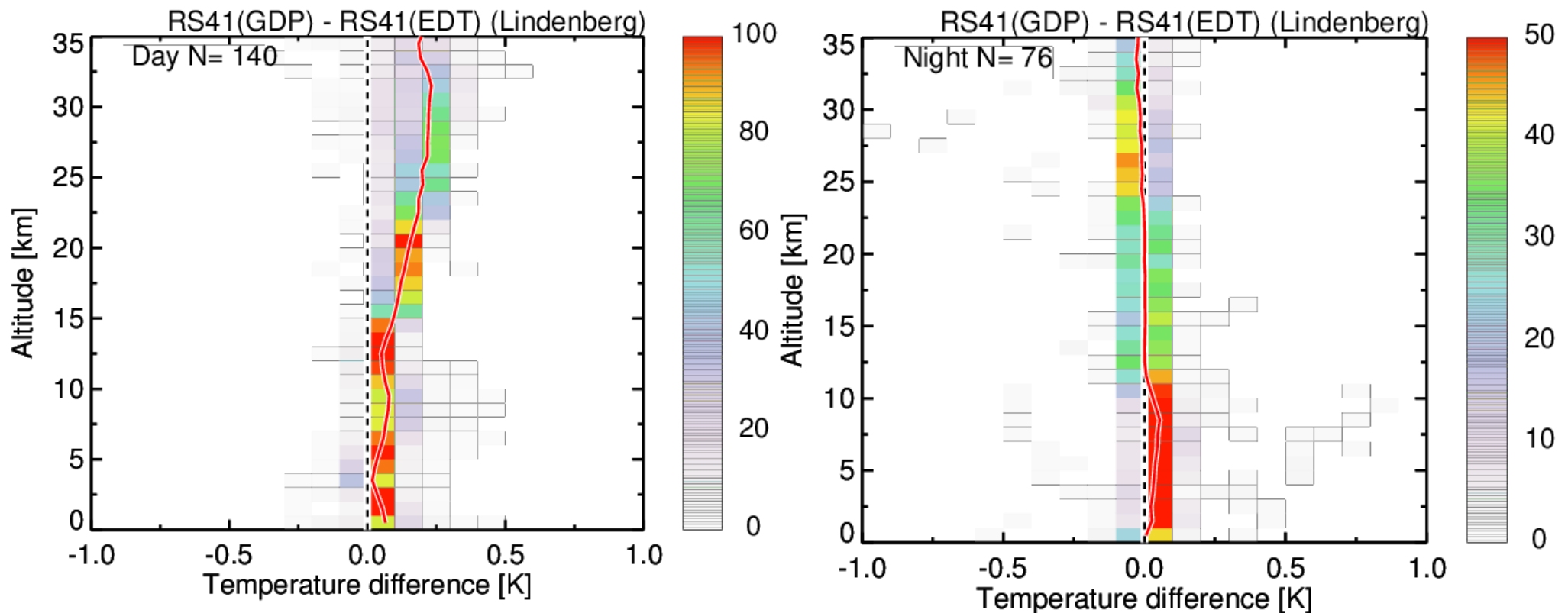
## RS41 GDP – RS41 EDT

Deutscher Wetterdienst  
Wetter und Klima aus einer Hand



Day

Night



GDP warmer than EDT > 15km

# Temperature – all sites

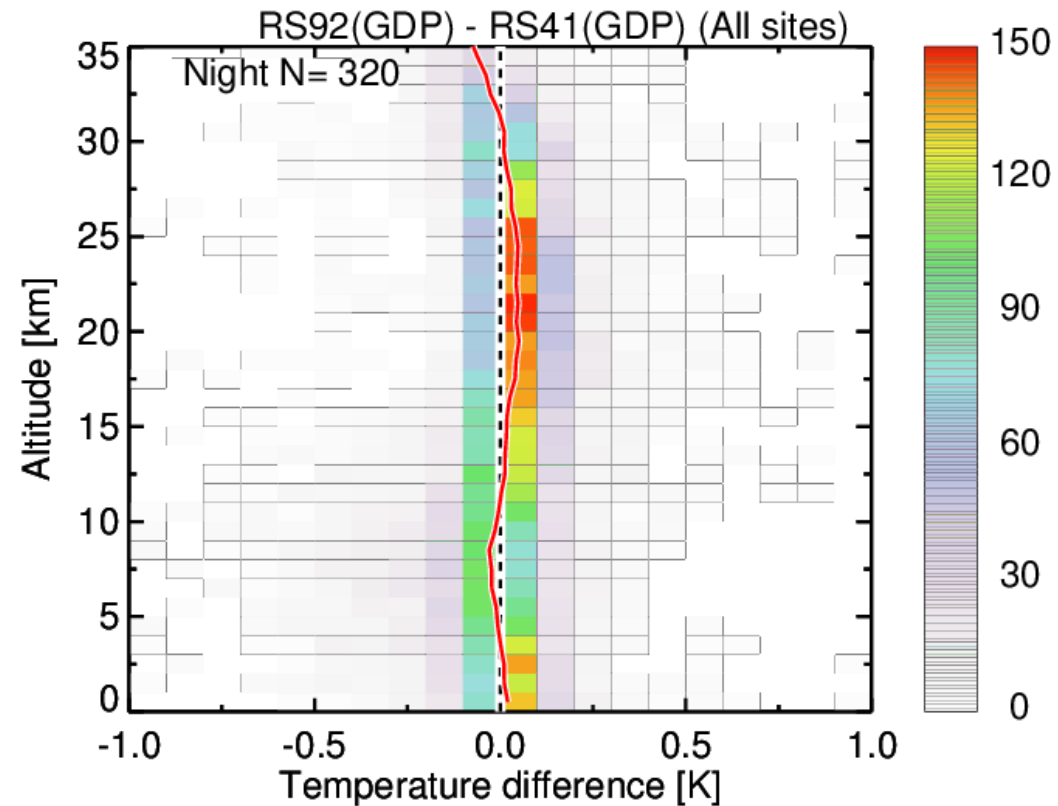
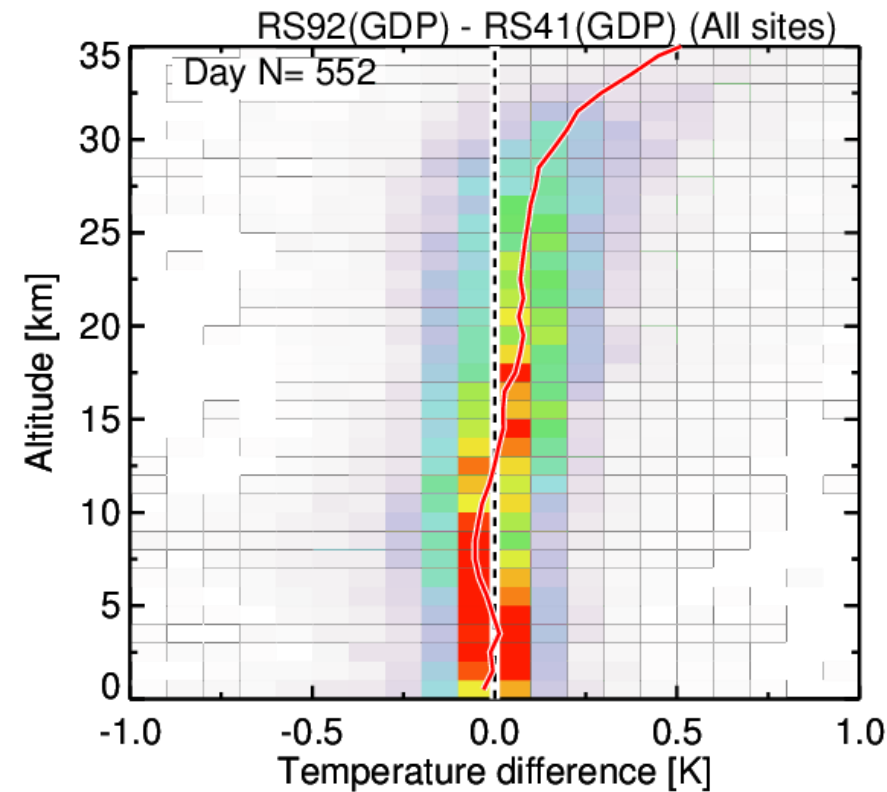
## RS92 GDP – RS41 GDP

Deutscher Wetterdienst  
Wetter und Klima aus einer Hand



Day

Night



RS92 warmer than RS41 > 25km

# Temperature – all sites

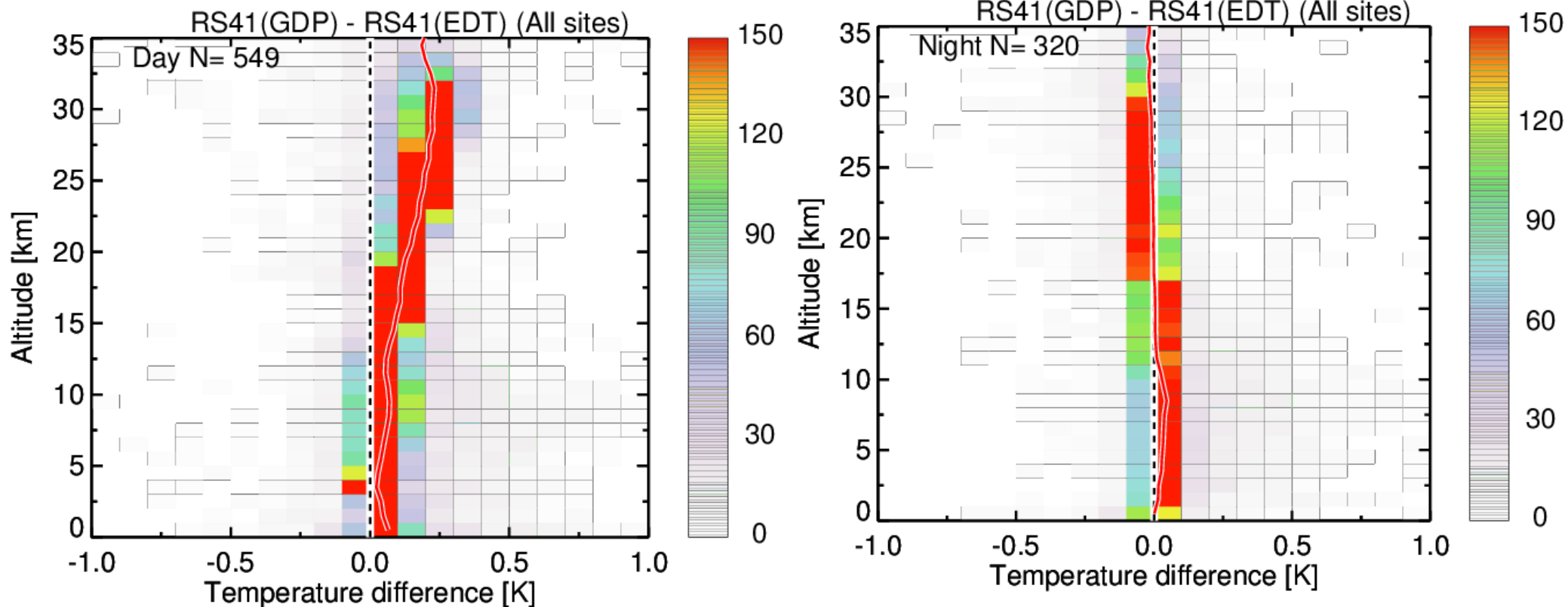
## RS41 GDP – RS41 EDT

Deutscher Wetterdienst  
Wetter und Klima aus einer Hand



Day

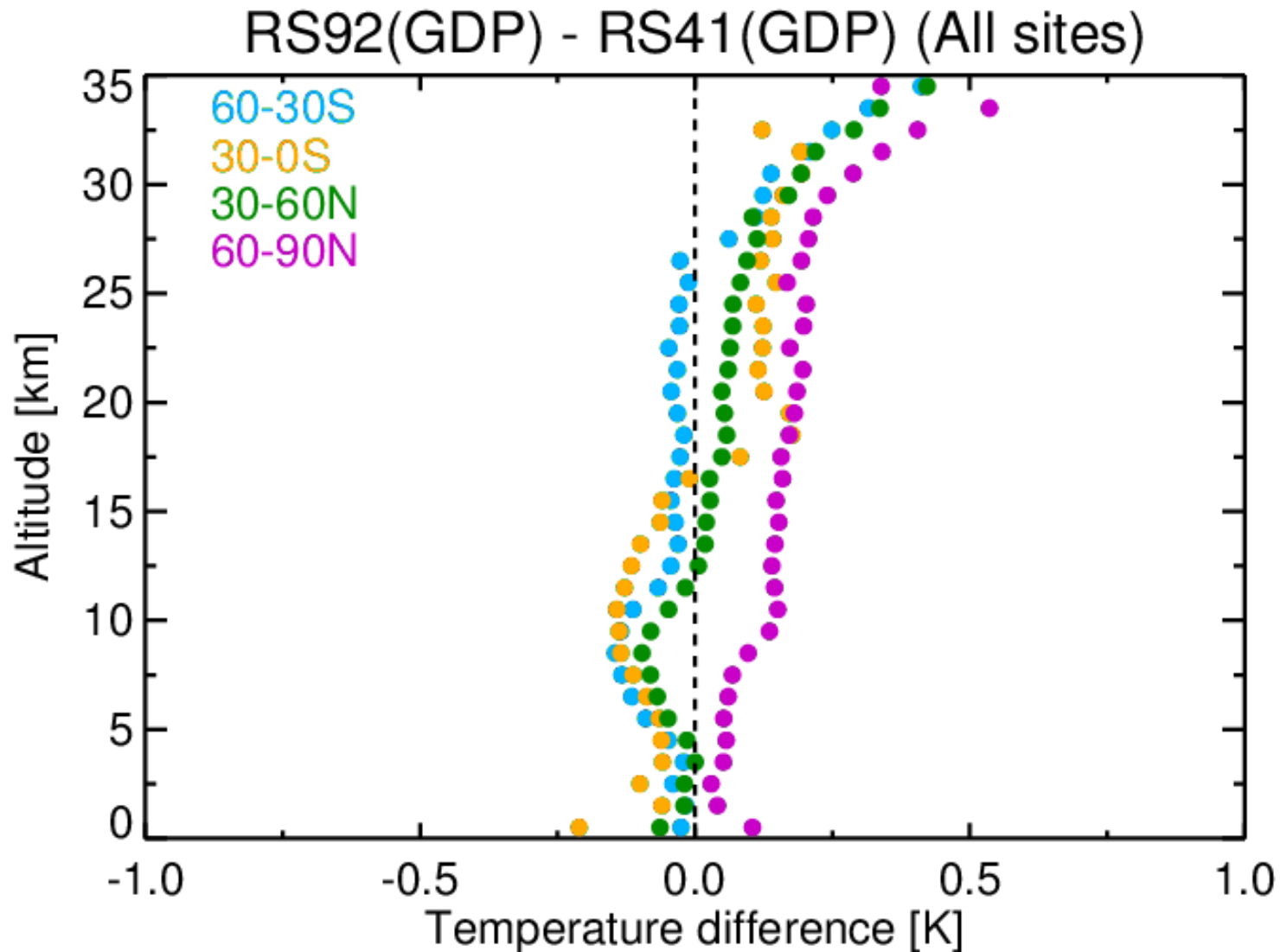
Night



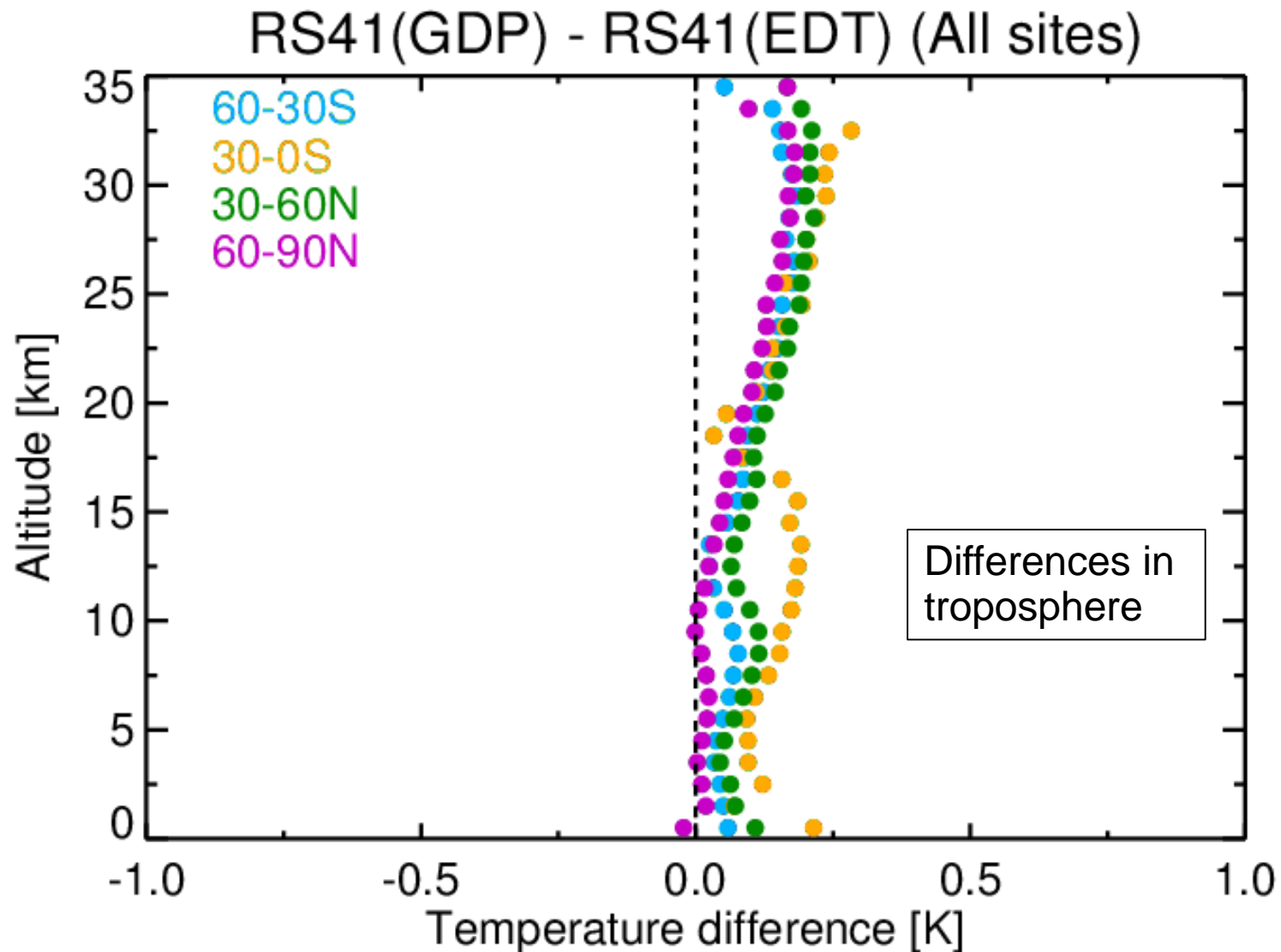
GDP warmer than EDT > 15km

# Temperature RS92 GDP – RS41 GDP Day

Deutscher Wetterdienst  
Wetter und Klima aus einer Hand

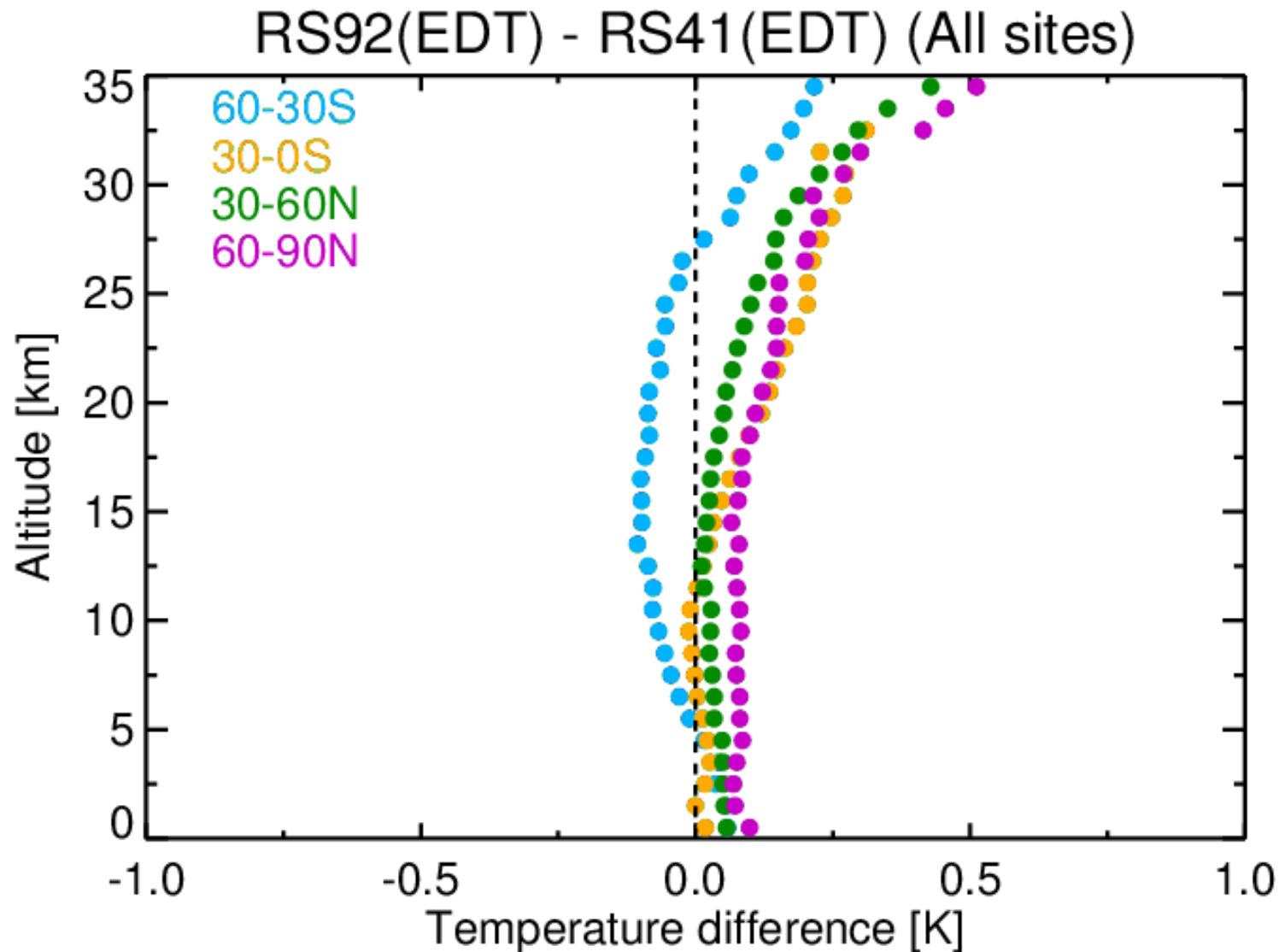






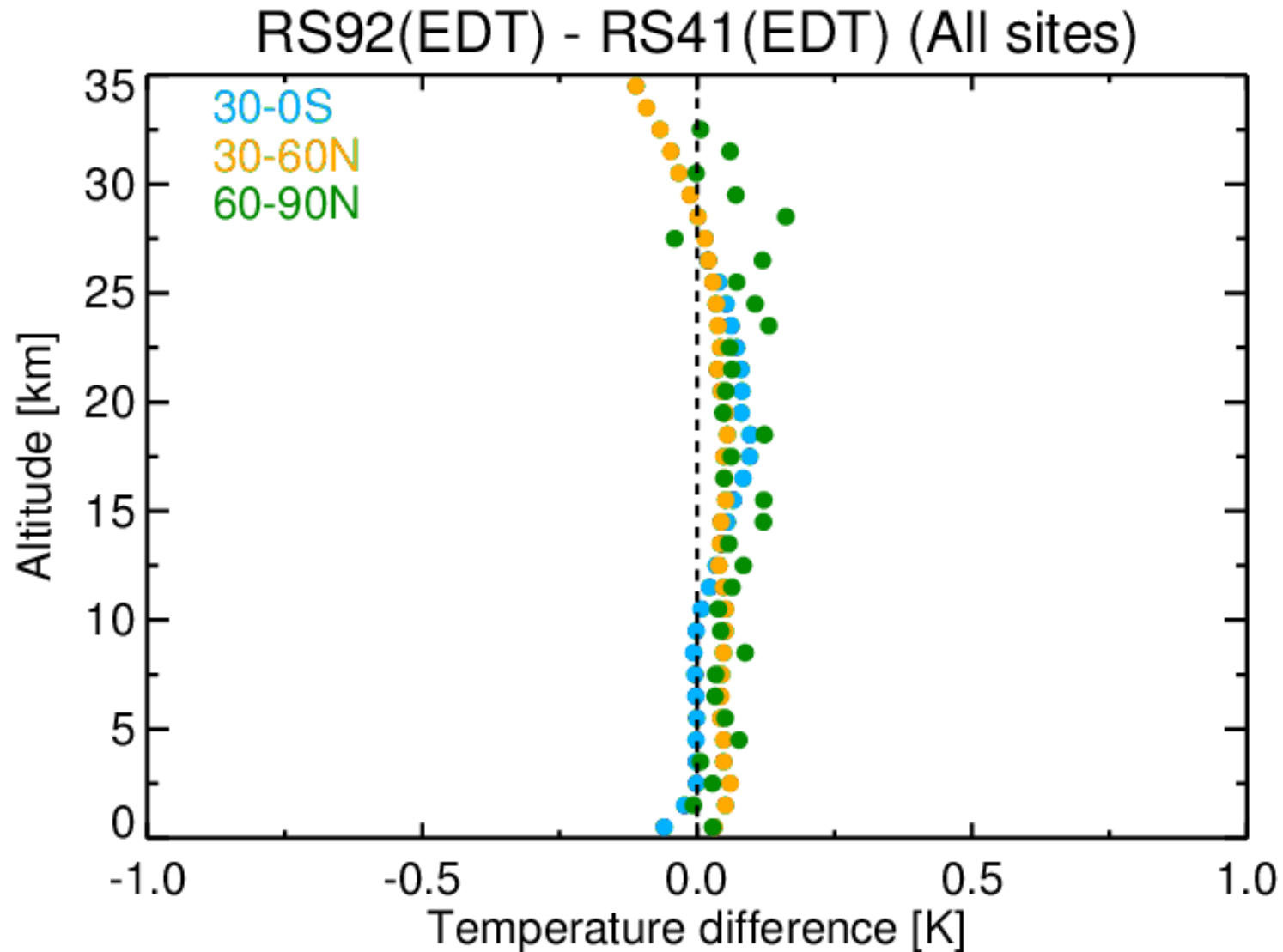
# Temperature RS92 EDT – RS41 EDT Day

Deutscher Wetterdienst  
Wetter und Klima aus einer Hand



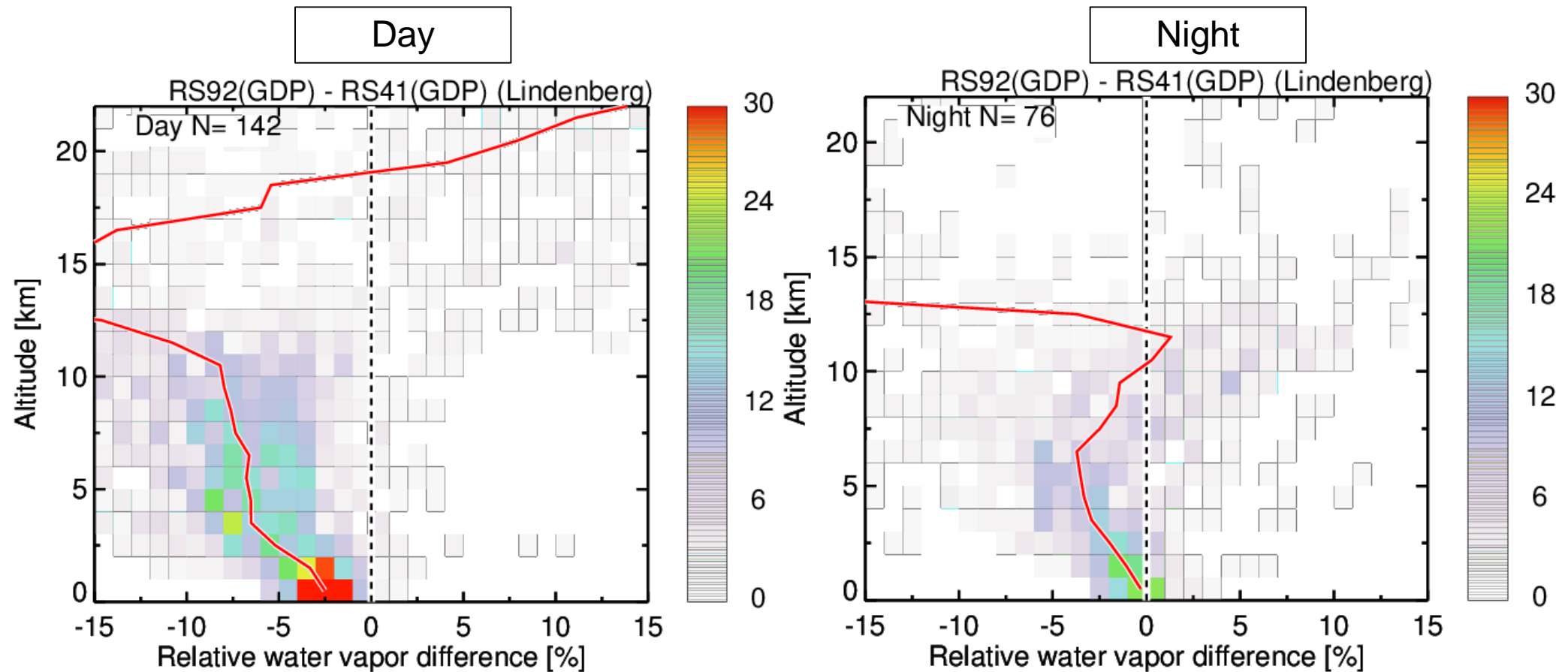
# Temperature RS92 EDT – RS41 EDT Night

Deutscher Wetterdienst  
Wetter und Klima aus einer Hand

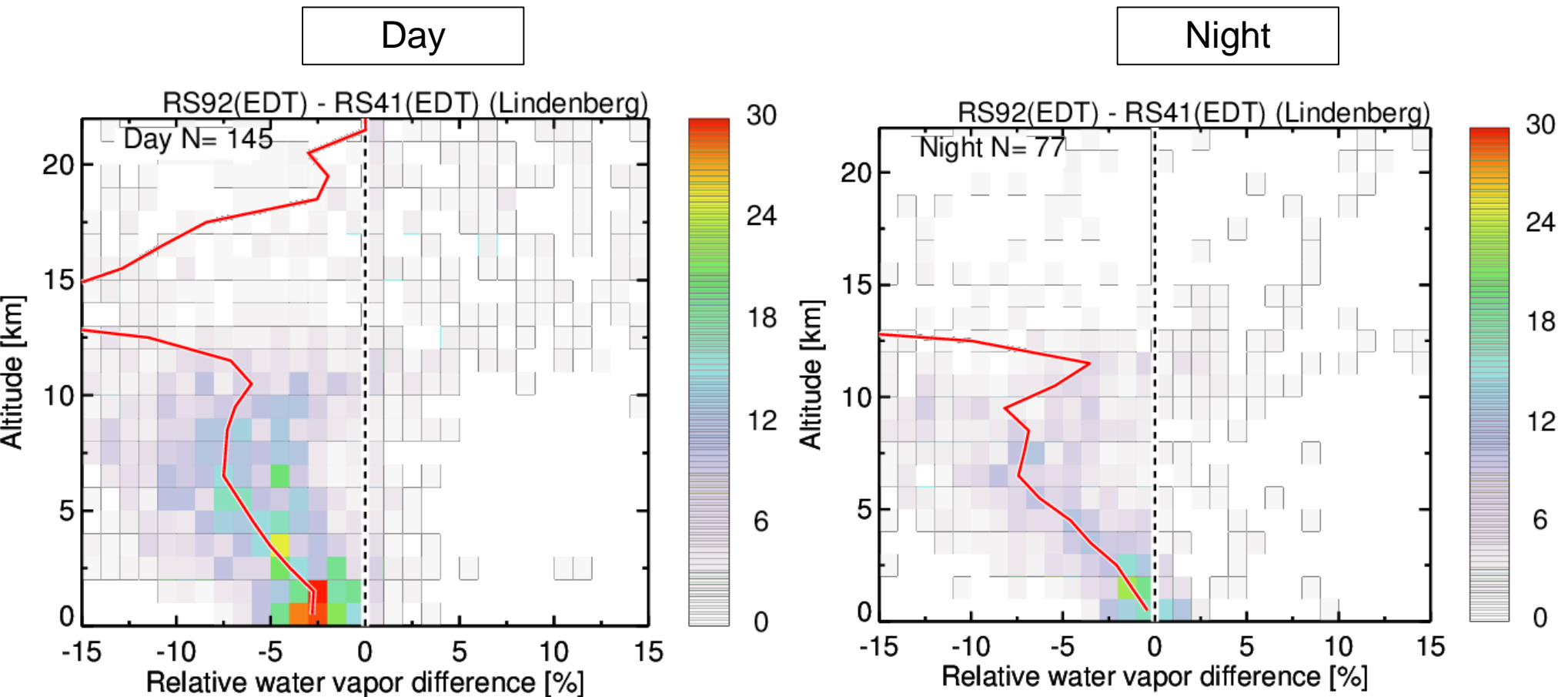


# RH – Lindenberg RS92 GDP – RS41 GDP

Deutscher Wetterdienst  
Wetter und Klima aus einer Hand



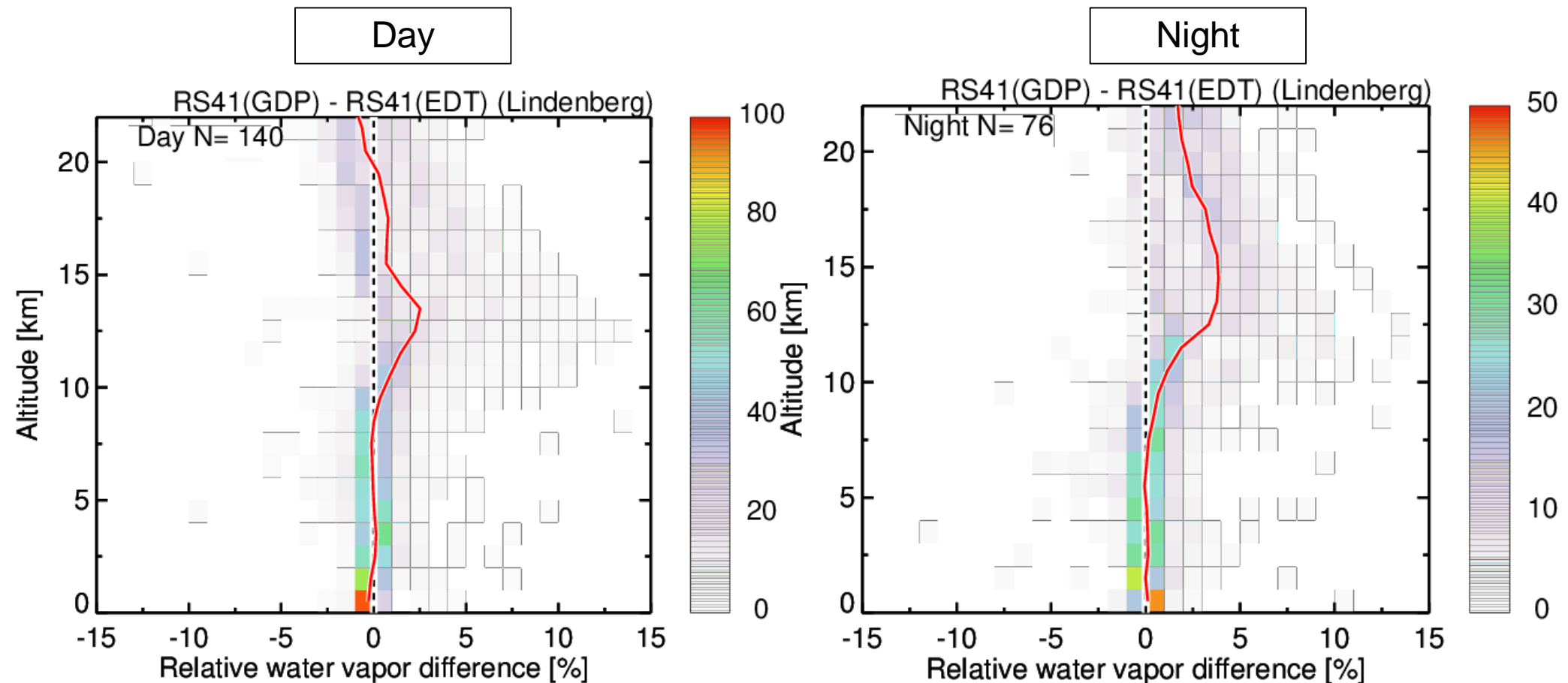
RS41 moister than RS92 in troposphere  
(day and night)



RS41 moister than RS92 in troposphere  
(day and night)

# RH - Lindenberg RS41 GDP – RS41 EDT

Deutscher Wetterdienst  
Wetter und Klima aus einer Hand



Differences GDP - EDT in UTLS region

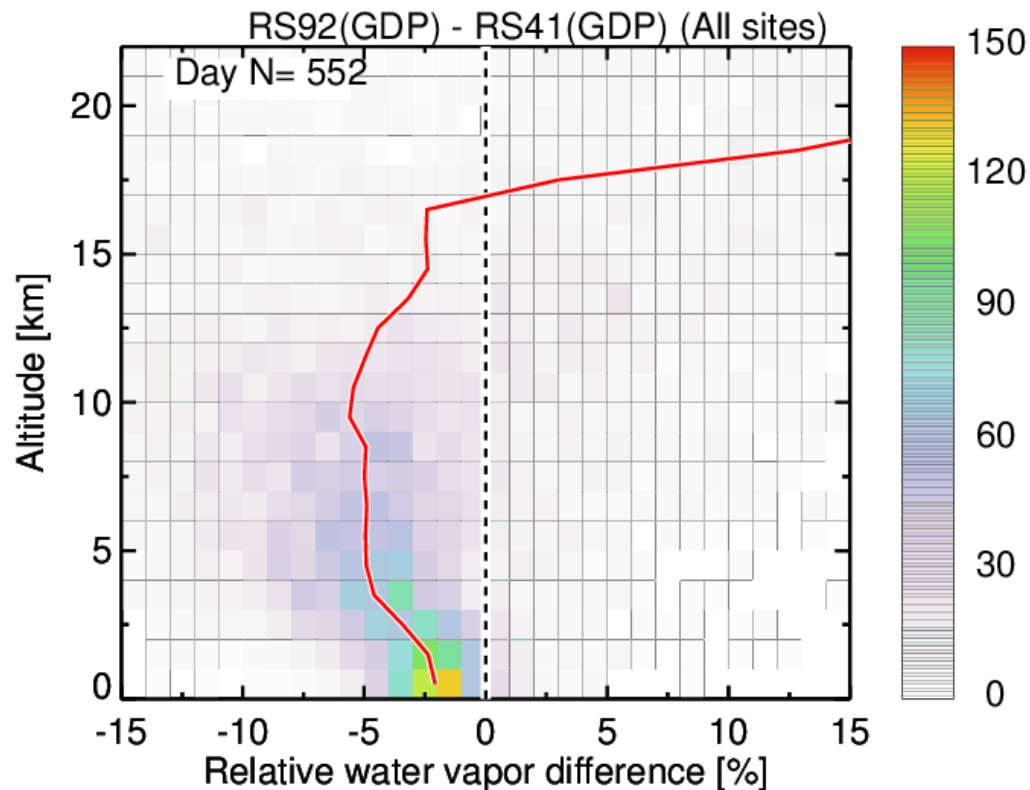
# RH – all sites

## RS92 GDP – RS41 GDP

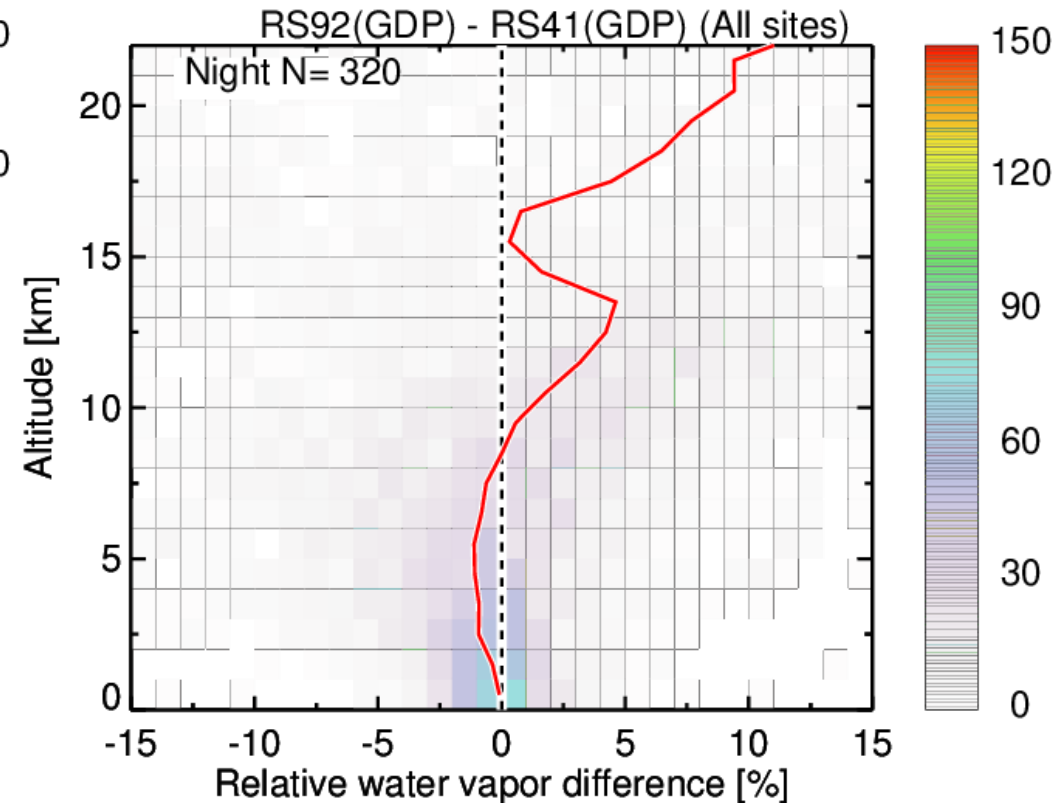
Deutscher Wetterdienst  
Wetter und Klima aus einer Hand



Day



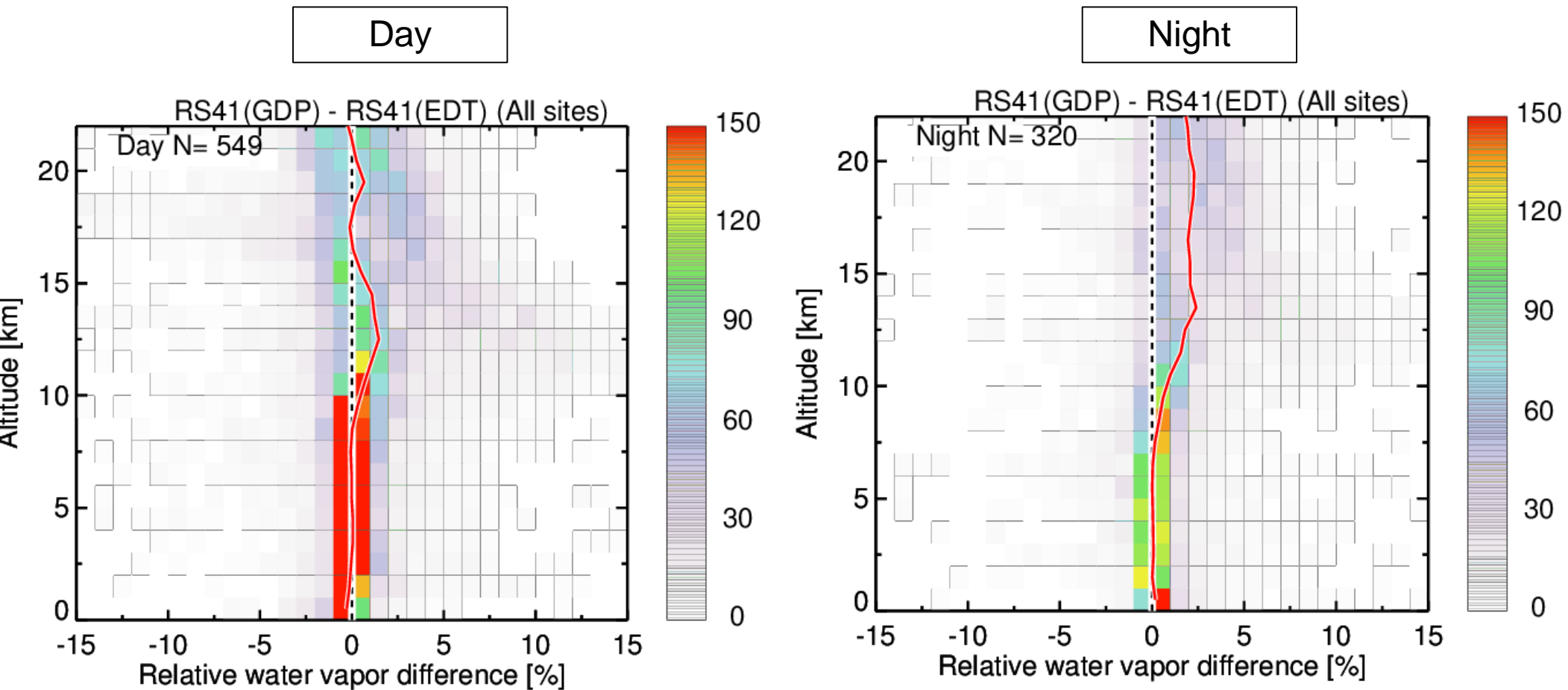
Night



RS41 moister than RS92 in troposphere  
Similar to Lindenberg, though smaller  
differences at night

# RH – all sites RS41 GDP – RS41 EDT

Deutscher Wetterdienst  
Wetter und Klima aus einer Hand



Differences GDP - EDT in UTLS region  
Similar to Lindenberg

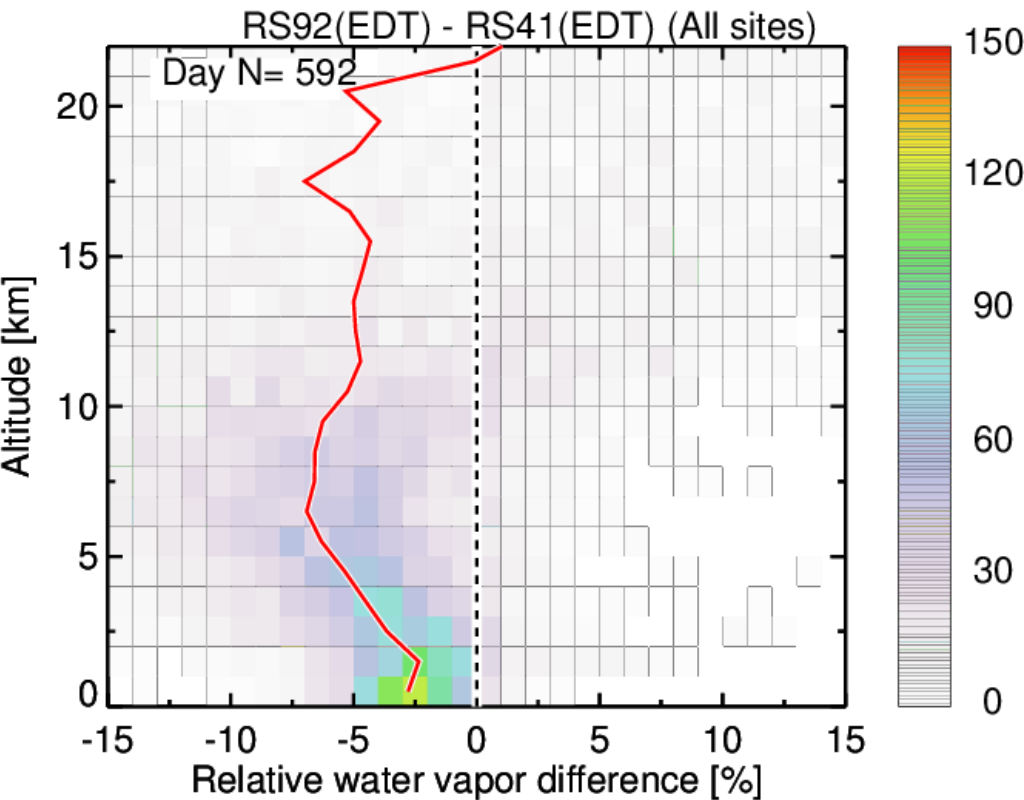


# RH – all sites RS92 EDT – RS41 EDT

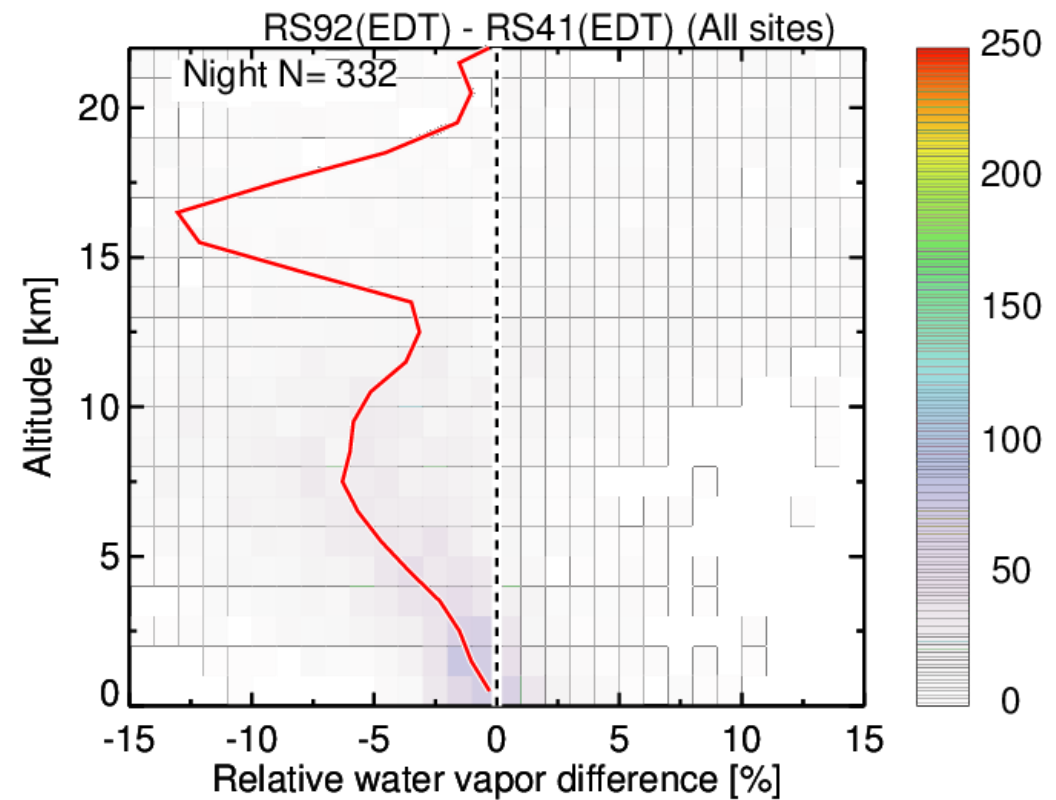
Deutscher Wetterdienst  
Wetter und Klima aus einer Hand



Day



Night



RS41 moister than RS92 in troposphere  
(day and night)  
Similar to Lindenberg

- Extensive dataset of RS92-RS41 soundings (GRUAN-processed)
- Solar elevation angles 0-90° covered
- Temperature
  - RS92GDP warmer than RS41GDP above 25km (day)
  - RS41GDP warmer than RS41EDT above 15km (day)
  - Some latitudinal dependence
- Humidity
  - RS41 moister than RS92
  - Some GDP- EDT differences in UTLS region
- Plans
  - Further analysis (e.g. include CFH)