CaPRIX:
Cabauw PRofiler Intercomparison eXperiment

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Outline presentation

- CaPRIX project
- Systems and site
- Comparison results
- Cases

Motivation CaPRIX-project

- High resolution mesoscale models need data input at high temporal and spatial resolution
- Replacement of balloon soundings used at shooting range/local air fields (Royal Airforce)

⇨ "OSE": (boundary layer) profiling network consisting of 6 stations with BL-profiler/Sodar (RASS)

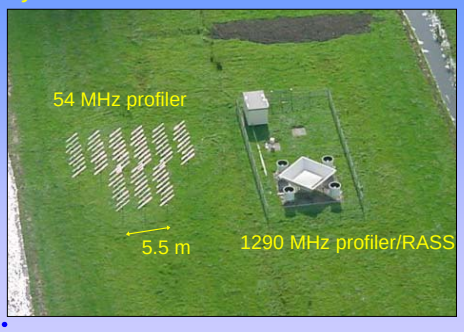
Main objective CaPRIX:
Assessment of performance of the VHF windprofiler

System characteristics

VHF
- spaced antenna (FCA)
- λ = 5.5 m
- peak power: 7500 W
- range gate: 100, 300 m
- full cycle: 2 min.
- beam width: 15°
- antenna: 27 Yagi's

UHF
- Doppler Beam Swinging
- λ = 0.23 m
- peak power: 500 W
- range gate: 100, 400 m
- full cycle: 4 min. (5-beam operation)
- beam width: 6° oblique 15.5° from zenith
- antenna: micro patch phased array

Systems



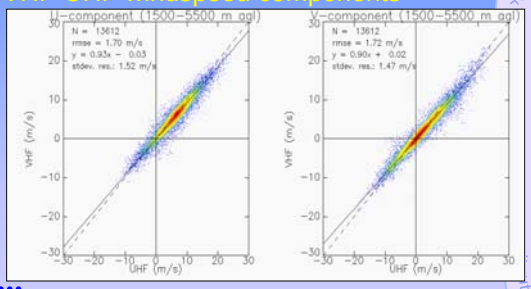
Cabauw Site

Tower (213 m high)

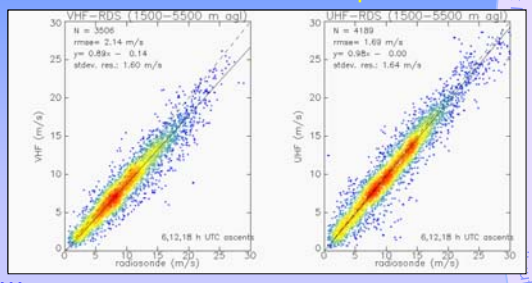
Profilers:
- 300 m from tower
- data in real-time on KNMI-Intranet

Period:
April-October 2000

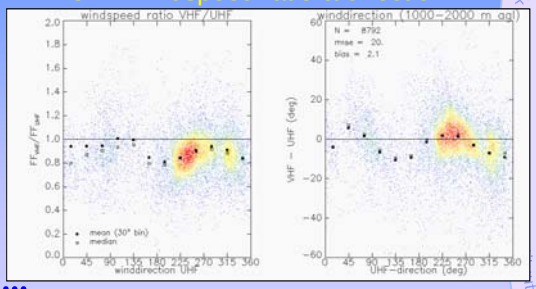
VHF-UHF windspeed components



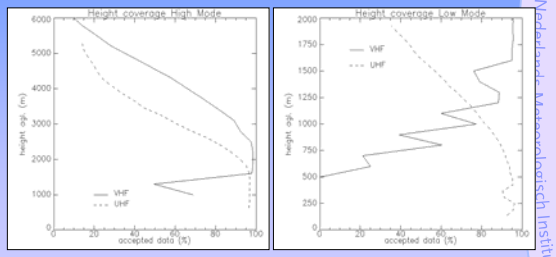
VHF-UHF - Radiosonde windspeed



VHF-UHF windspeed ratio & direction



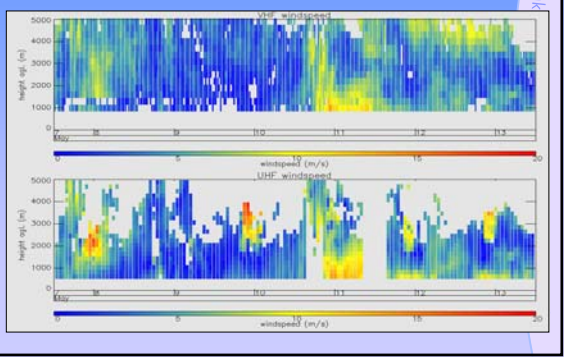
Height coverage



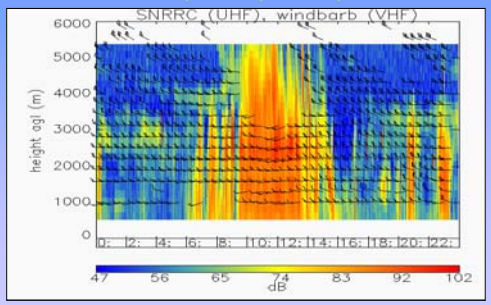
Cases

- Spring bird migration
- Stratiform rain
- Convective Boundary Layer

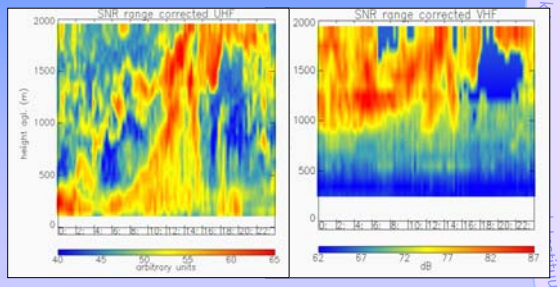
Spring bird migration



Stratiform rain (13 July 2000)



Convective Boundary Layer (12 May 2000)



Summary VHF boundary layer profiler

- VHF speed ≈ 8% below UHF speed
- precision VHF and UHF data approximately equal
- height coverage:
  - highest range: sufficient
  - lowest range: ??
- no bird contamination
- no beam-switching:
  - higher temporal resolution in vertical direction
- http://www.atrad.com.au/atrad_results