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COMPARISON OF SHIP GAUGE AND RADAR PRECIPITATION MEASUREMENTS OVER THE BALTIC SEA

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There are only few in situ measurements of precipitation over sea due to lack of rain gauges suitable for use on moving ships. Hence a special ship rain gauge had been developed at the Institut für Meereskunde, Kiel. These are operated on several ferries to continuously measure precipitation over the Baltic Sea. Areal coverage of precipitation over the Baltic Sea is available from weather radar composite imagery from those radars within the NORDRAD collaboration, available every 15 minutes (figure 1). Comparison of these two methods has been made at the location and time of precipitation measurements of the ships. Good agreement was found in the mean (figure 2), despite of considerable scatter for short term averages. No systematic deviations were found e.g. depending on distance between ship and radar.

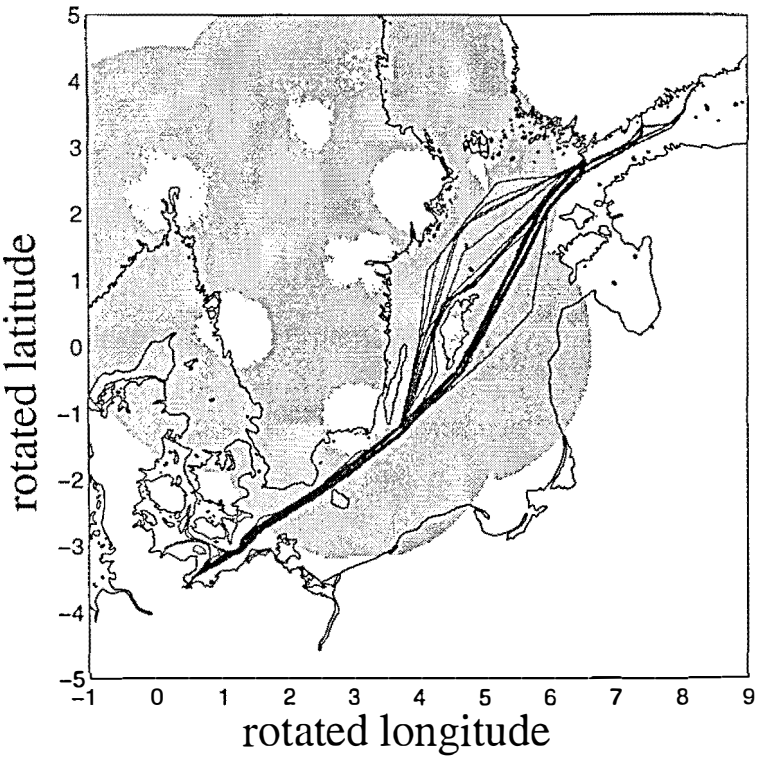

Figure 1: **Area covered by the NORDRAD radar network.** *The tracks of four Baltic Sea ferries during the PIDCAP- period are also shown. For better comparison with numerical weather forecasts REMO / EM rotated coordinates have been used in this plot.*

Additionally, measurements from a ship rain gauge mounted on an offshore mast at the Darss Sill were compared to the radar operated by the Deutscher Wetterdienst at Rostock. These radar estimates are adjusted to land based precipitation measurements. The totals of radar estimates and precipitation measured at ships agreed quite well, too.

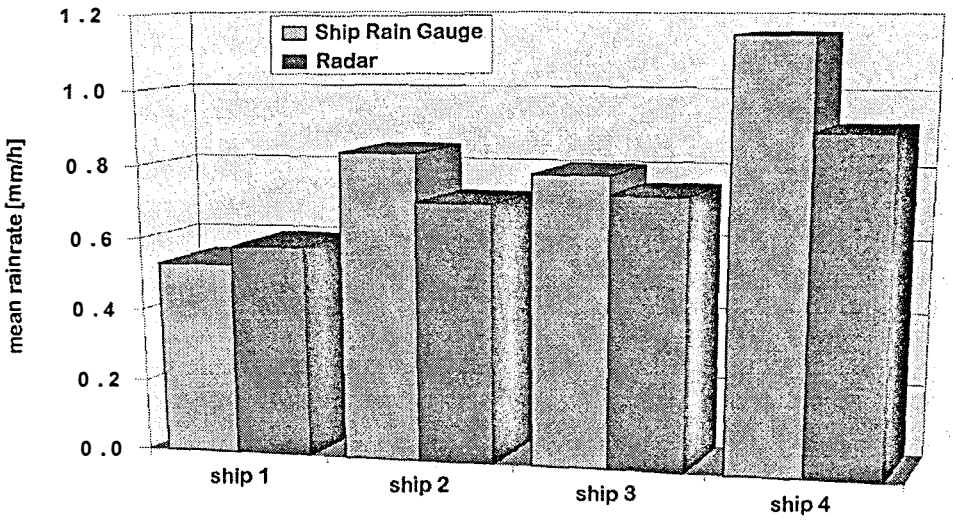

Figure 2: **Mean rain rates at the ship's individual positions.** *In situ measurements (light grey) and interpolated radar results (dark grey) are shown for the period Aug. 13th to Oct. 23rd 1995.*

Both investigations were performed for the PIDCAP period, under late summer/early fall conditions. These investigations should be extended in time to contain measurements from other synoptic conditions.

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