



Development of a long term air-sea interaction monitoring station at FRF pier in Duck (NC, USA)

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The Field Research Facility of the United States Army Corps of Engineers in Duck, North Carolina, USA includes a 600-m long pier, wave buoys and other instruments which are used for monitoring oceanographic, meteorological and micro-meteorological measurements. Also, there are several measurement systems which were used during intensive field campaigns. Two such campaigns, focused on air-sea interactions and the surface exchanges of aerosols and gases, were conducted in 2004 and 2005, see the contributions of De Leeuw et al. and Norris et al. to this conference. After the second campaign, WASFAB in October 2005, instrumentation was set up for continued measurements of momentum, heat, water vapour, and CO₂ transfer. Sonic anemometers (R3 and WindMaster Pro) and open-path Non-Dispersive Infra-Red (NDIR) equipment were mounted at 7 and 16 m above mean sea level, taking advantage of a boom that was specifically mounted for this purpose and extends about 10-m sea ward from the pier, and a meteorological mast at the far end of the pier. Additional water vapour and CO₂ concentrations measurements are made with closed path licor system that were also used for aqueous pCO₂ measurements. The primary objective of these measurements is to determine wind speed and stability dependence of drag coefficients in very-high wind speeds in relation to wave development. After the initial phase, from October 2005 to March 2006, the results will be evaluated and preparations will be made for long-term deployment of the instrumentation. The addition of aerosol flux measurements is being considered. In this contribution the experimental set up will be presented including an overview of results from the first 6 months of measurements.