Measurements of soot in air and precipitation in measures of absorption coefficient have been performed during the period from 1st June 2005 to 31st December 2006 at Maldives Climate Observatory Hanimaadhoo (MCOH). A Particle Soot Absorption Photometer (PSAP) was used equipped with a dedicated sensor measuring backscattered light to estimate the relative importance of absorption and scattering.
The meteorological situation at MCOH was dominated by the Indian monsoon circulation with two annual phases. The dry winter monsoon (November - March), when air influenced by anthropogenic activities such as combustion, transported high concentrations of soot from the Indian subcontinent. The wet summer monsoon (June - September) when air influenced by natural sources transported marine aerosol particles from the south Indian Ocean.
The analysis showed a seasonal distribution with high optical absorption during the dry monsoon and low absorption during the wet monsoon, results consistent with the expected source regions. It was found at some occasions that the source region was possibly the Middle East. To investigate possible mineral dust content and its effect on light absorption, spectral measurements were performed. An enhanced absorption was noted at higher wavelengths which indicated the presence of mineral dust.
By measuring the scattered light it was possible to confirm that the extinction was dominated by scattering when the source region was the Indian Ocean.