



Trends in top altitude of clouds (in meter per year) derived from measurements of the spectrometers GOME, SCIAMACHY and GOME-2 in the period between June 1996 and May 2012. From top, clockwise: **(a)** map of the absolute changes in cloud top altitude; **(b)** map of the natural variability (standard deviation) of the changes in cloud top altitude; **(c)** map of those changes in cloud top altitude exceeding natural variability at the 95% confidence; **(d)** time series of cloud top height (CTH, top plot) and cloud horizontal extent (also termed cloud fraction, CF, bottom plot) and their correlation with ocean mean temperatures at the surface (El Niño 3.4 index) over the Central East Pacific (170°W - 120°W and 5°N - 5°S). Over this area (red outlined box), the El Niño-Southern Oscillation (ENSO) typically reaches its maturity, strongly modulating cloud properties. Globally, the ENSO is thought to pull clouds to lower altitudes (Lelli et al., 2014). Courtesy: Luca Lelli and Alexander Kokhanovsky (U. Bremen).