Motivated by measurements from the TransBrom campaign in October 2009 with RV Sonne a new research station was established on Palau (7° N, 135° E) as part of the StratoClim EU-project: since January 2016 intensive measurement periods and regular ozone soundings to improve limited data pool.

Development of a new device to monitor the background current of ECC ozone soundings in flight to lower the instrumental detection limit and improve measurements at mixing ratios near detection limit (~15 ppbv).

- Improve the overall understanding of this yet controversial bias
  (see Vömel and Diaz, 2010).

Fig. 11: Seasonal variation of tropospheric ozone VMR from preliminary ECC sonde data for 2016.

Fig. 12: Relative frequency distribution (normalized by layer maximum) of ozone VMR (0-15km) from all (21 prelim.) profiles.

Fig. 13. Comparison of ozone distributions with respect to relative humidity (RH) (left), magenta: all data, blue: data with RH > 45%; examples of ozone and RH profiles with anti-correlated layers (middle, right).

Summary: Successful establishment of the new Palauan research station: growing data set from 01/2016 until 2018(+).

Under investigation: seasonal variation (incl. El Niño), relation of tropos. O₃ and H₂O, chemical and dynamical processes in the TTL.