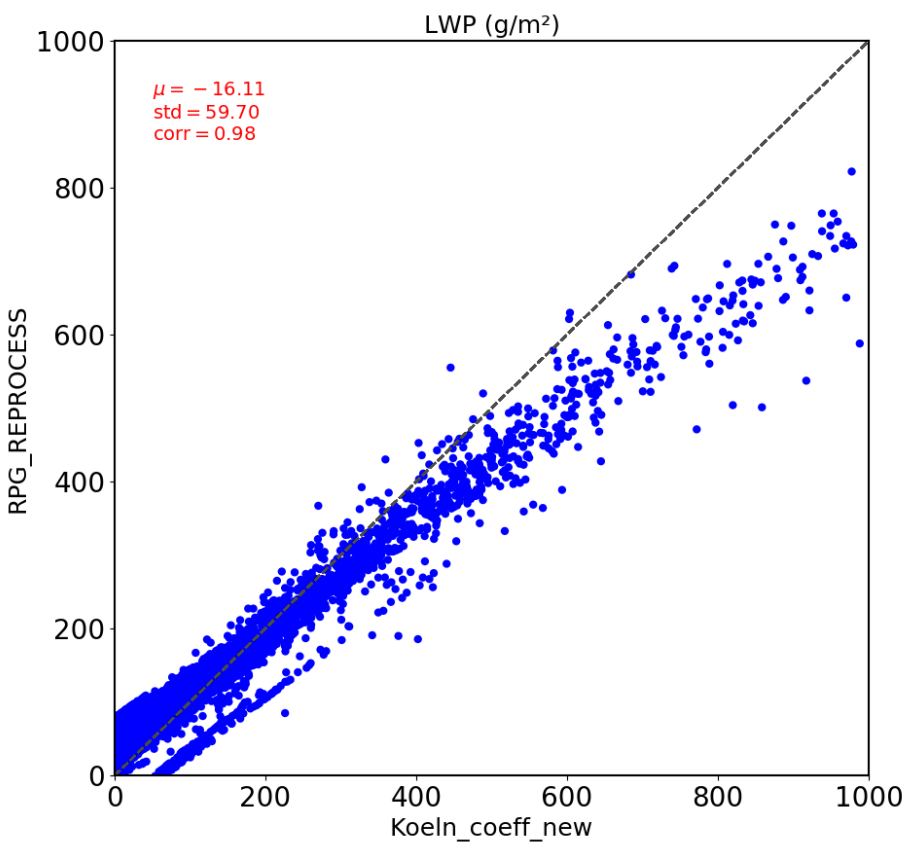
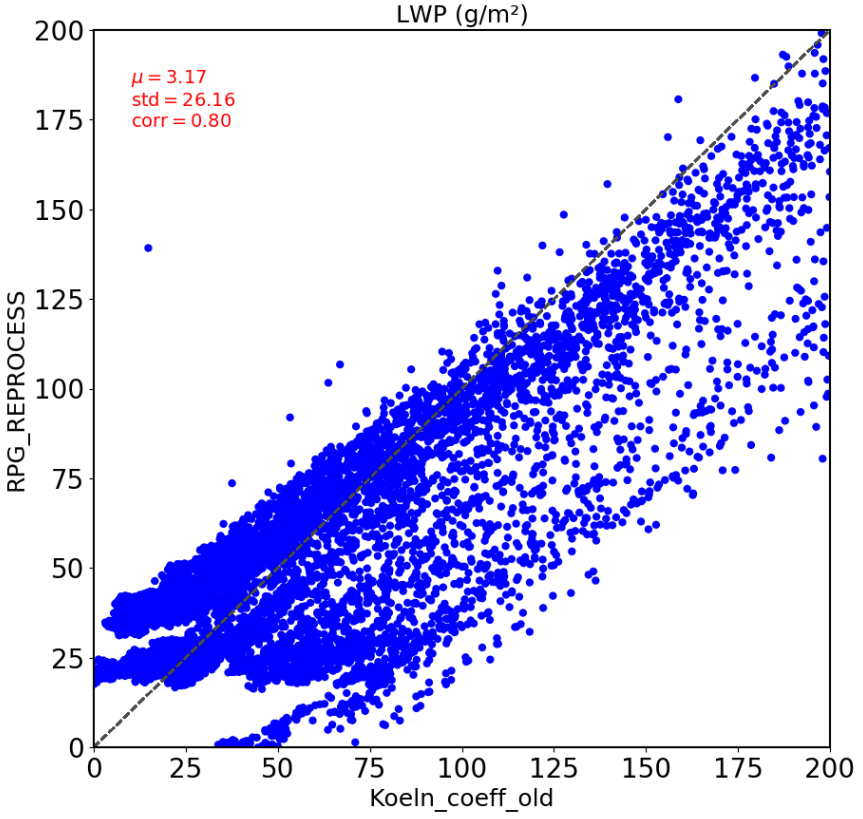
Summary on LWP inter-comparison RPG/ Koeln coefficients

LWP inter-comparaison : first results

→ Koeln coeff with its offset correction

→ RPG no offset correction

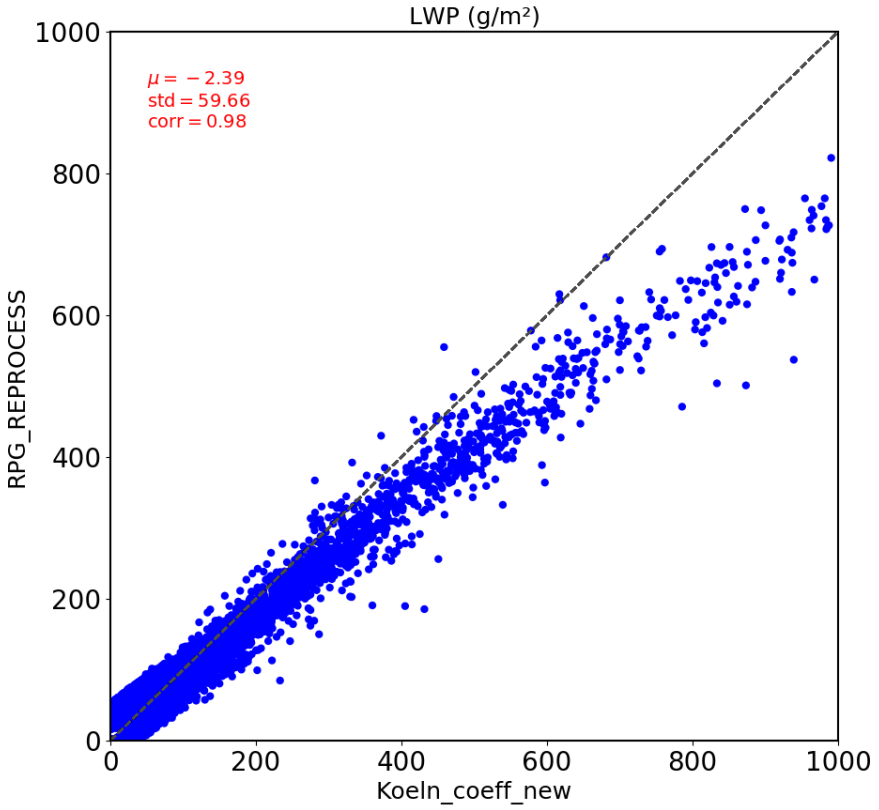


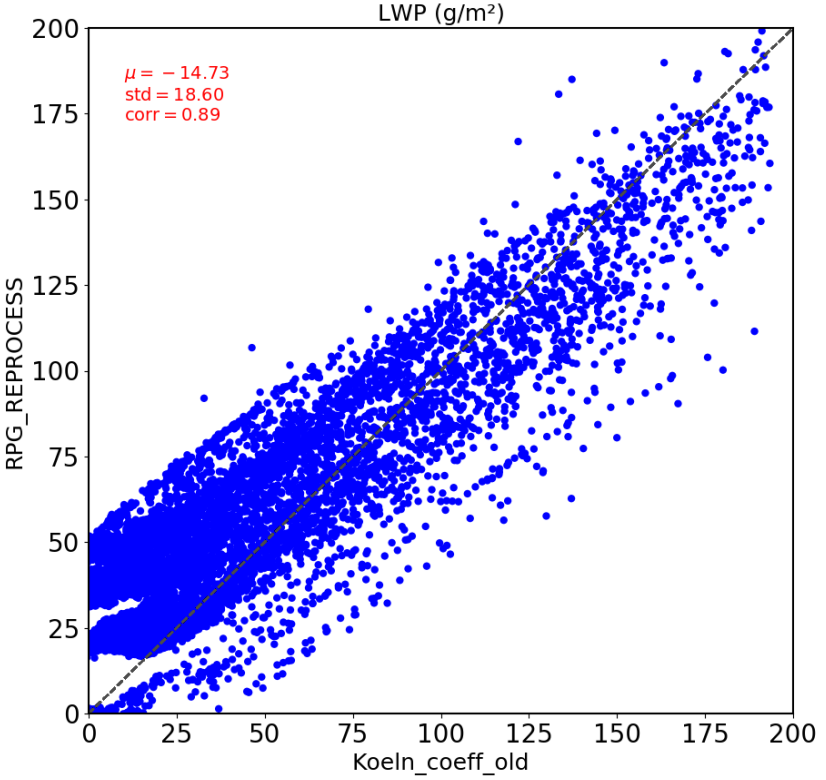


LWP inter-comparaison before offset correction

→ Koeln coeff **without** offset correction

→ RPG no offset correction



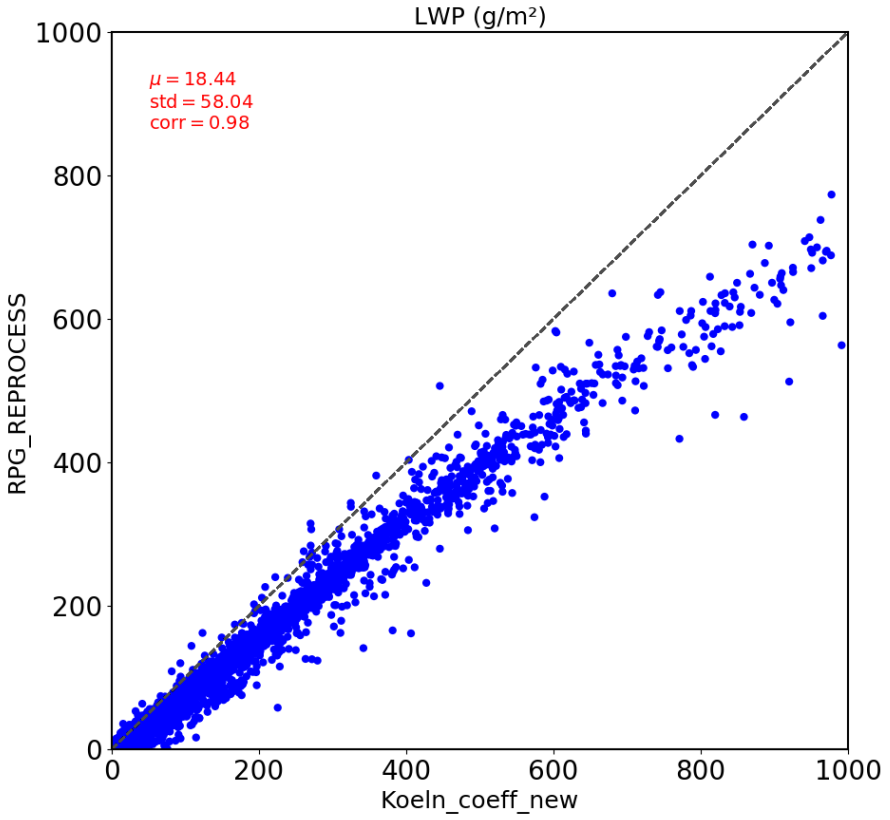


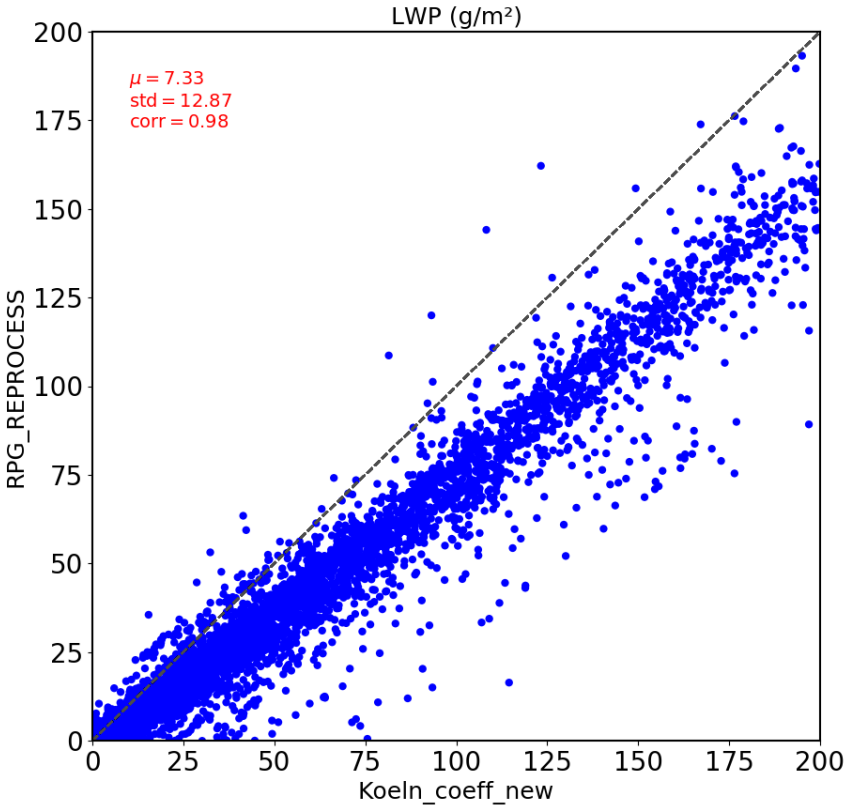
LWP inter-comparaison with offset correction applied on both dataset

→ Koeln coeff **with** offset correction

→ RPG **with** offset correction

Own offset calculation





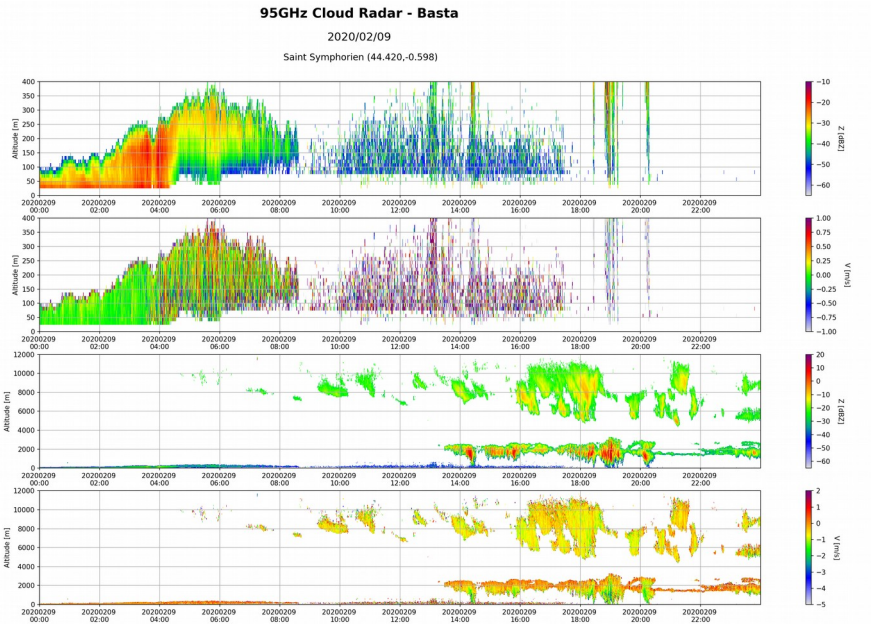
Work since last SOFOG3D internal meeting :

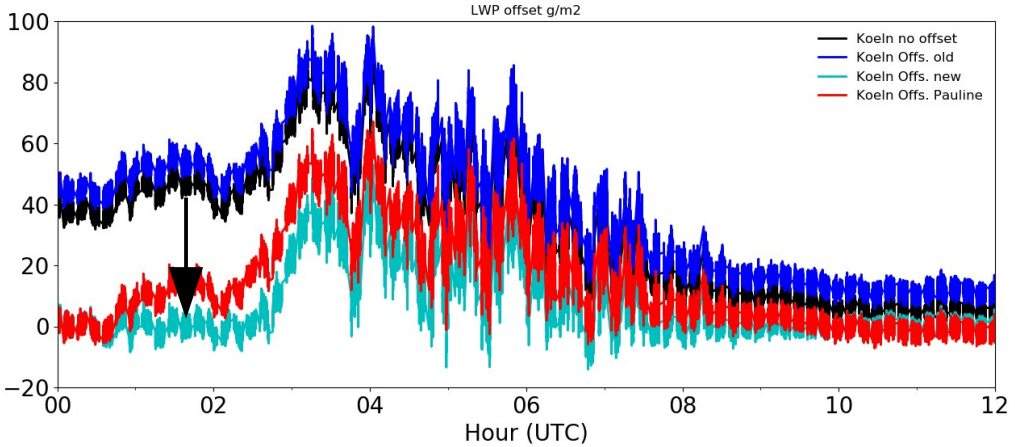
→ development of our own routine to calculate LWP offset correction the same way for different retrieval routines

Methodology :

- computation of LWP rolling standard deviation over 20 minutes periods at the initial LWP temporal frequency (each second)
- each 1 second LWP observation is considered as clear-sky if std(LWP_{20min}) < **2.5 g/m²** (1.5 g/m² initially)
- look for blocks of more than 20 minutes of clear-sky period
- LWP offset defined as the mean LWP over the 20 minutes for each clear-sky profile within clear-sky block
- linear interpolation for the whole period (to obtain the offset correction between clear-sky groups)

IOP 09/02/2020

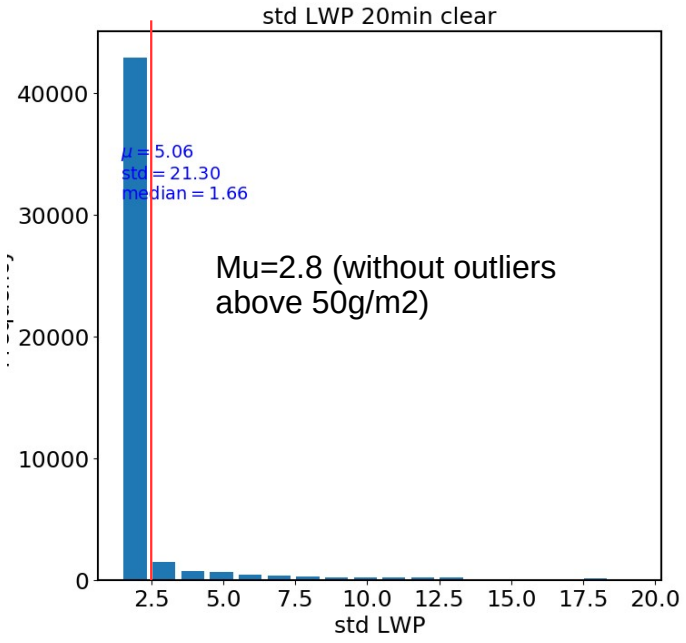


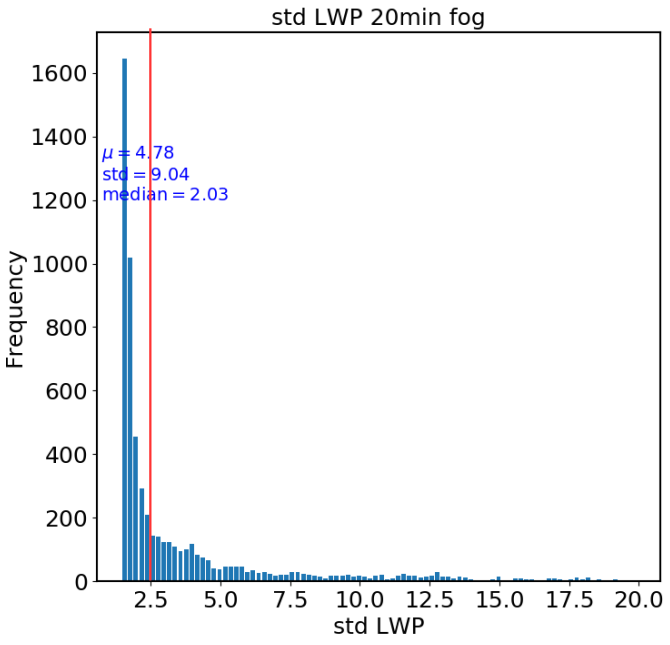


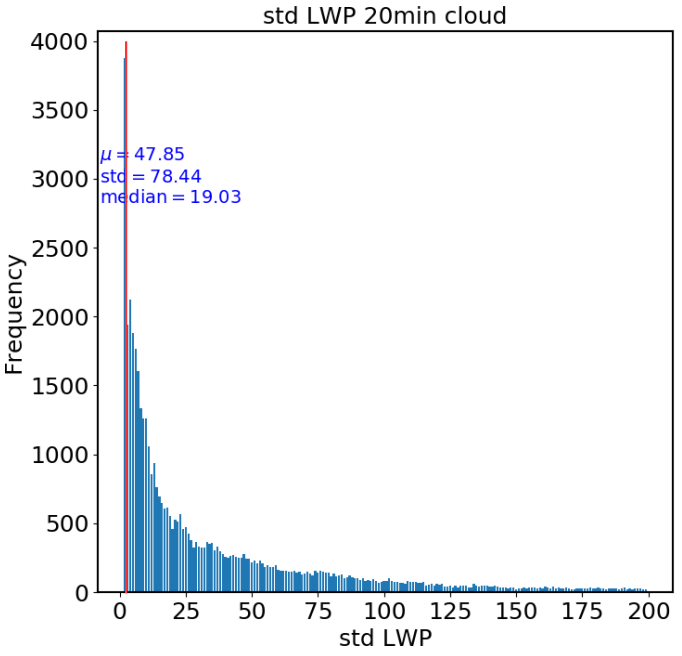
Decrease of the LWP values within the fog layer almost down to 0 g/m² with new Cologne offset
=> investigation into the definition of the threshold used to define clear-sky observation

- fog thickening between and 4 UTC
- stratus after 4 UTC
- dissipation at 8 UTC

LWP threshold for clear-sky detections







- clear-sky versus cloudy-sky identified with ceilometer cloud base height (problems identified with ceilometer cloud base detection (quality status necessary (DA))
- fog period identified with visibility sensor

- **LWP standard deviation over 20 min during fog : median value at 2 g/m²**

=> next step : use of a threshold of 2.5 g/m² (suitable to distinguish between clear and cloudy situations)
but reject fog period thanks to visibility measurements
=> in the future potentially use ceilometer data to detect clear-sky period