•Ammonia EC measurements

•Damping problem at Dronten

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•EGU Vienna

•24 April 2017

•www.ecn.nl

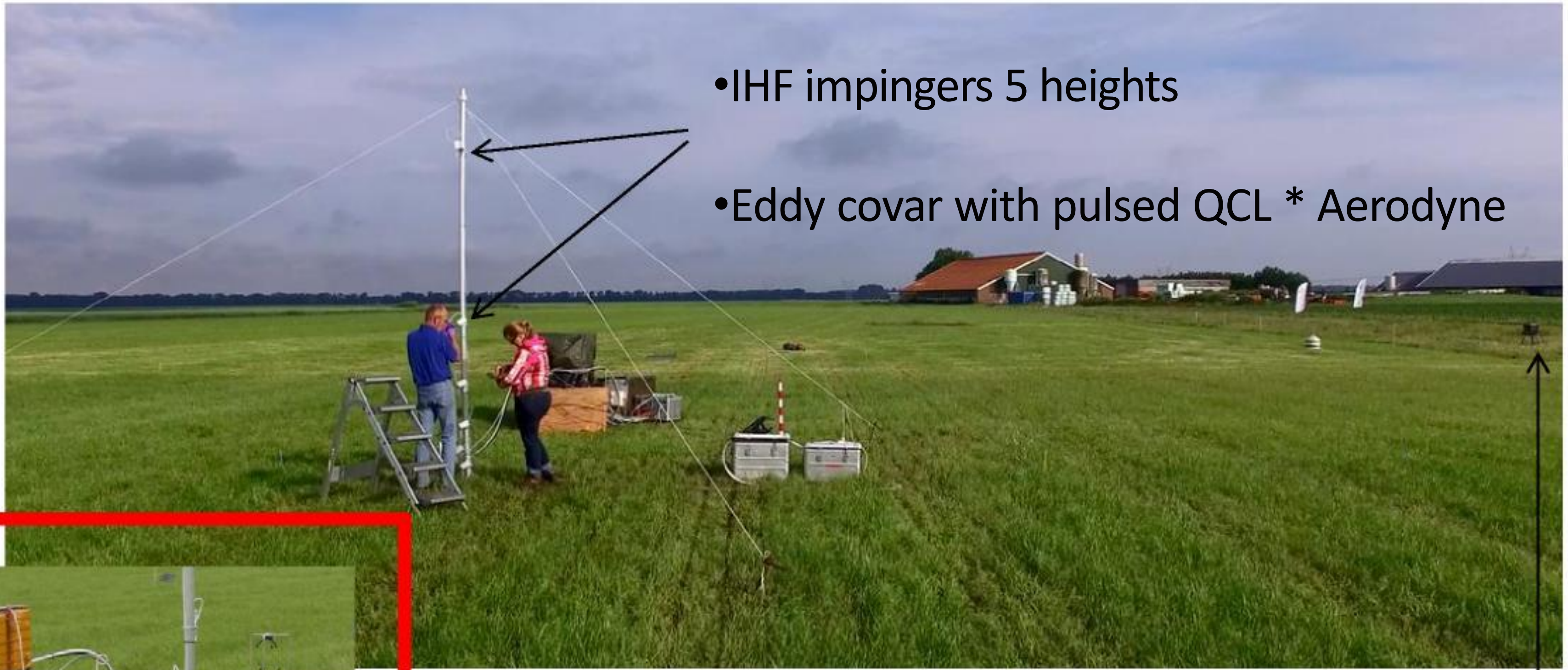
Your energy. Our passion.

- Gill
- WMPro
- + virtual
- impactor inlet

- 4 m inlet
- heated & at
- 0.1 barr

- Aerodyne CH4-N2O-H20-NH3 QCL

•Plot North: Injected

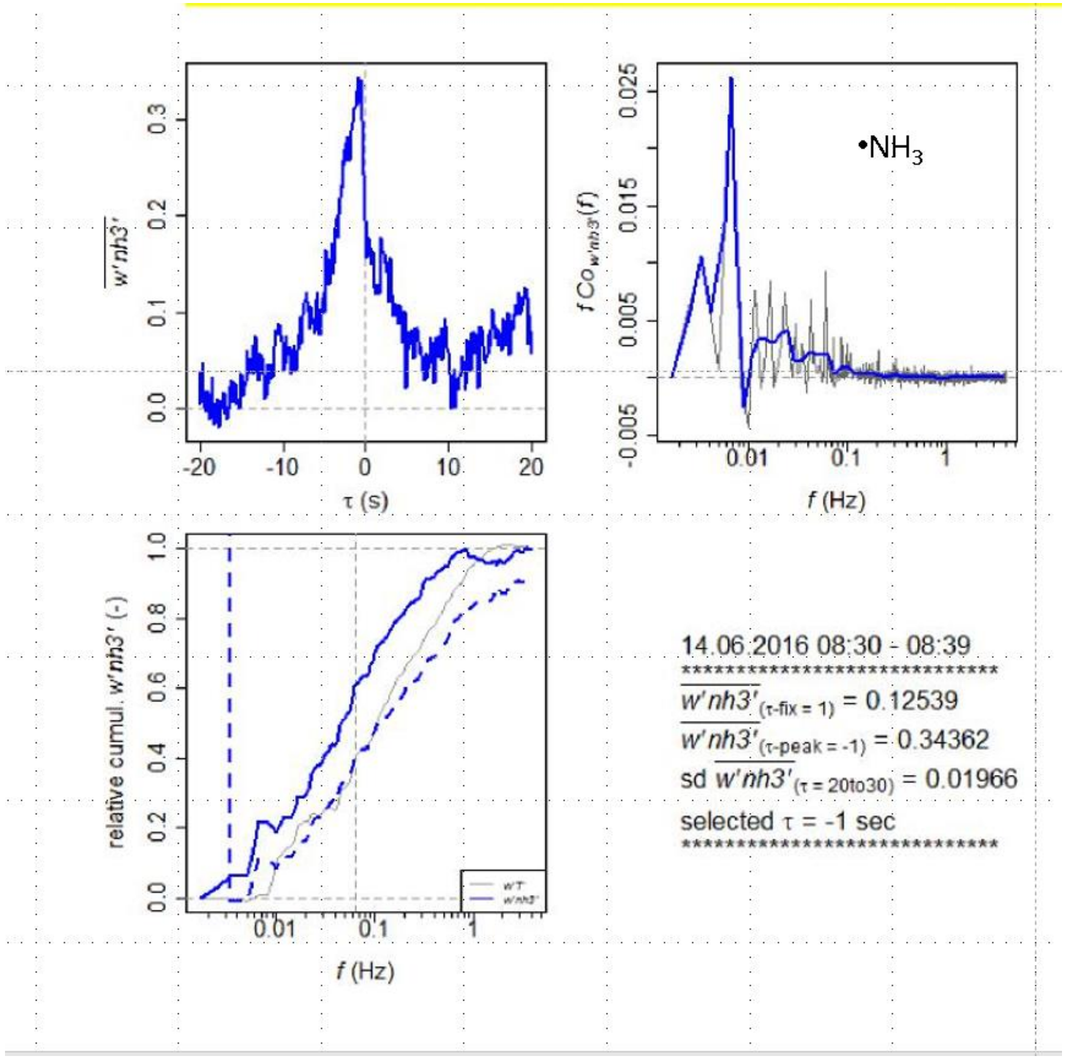


- IHF impingers 5 heights
- Eddy covar with pulsed QCL * Aerodyne

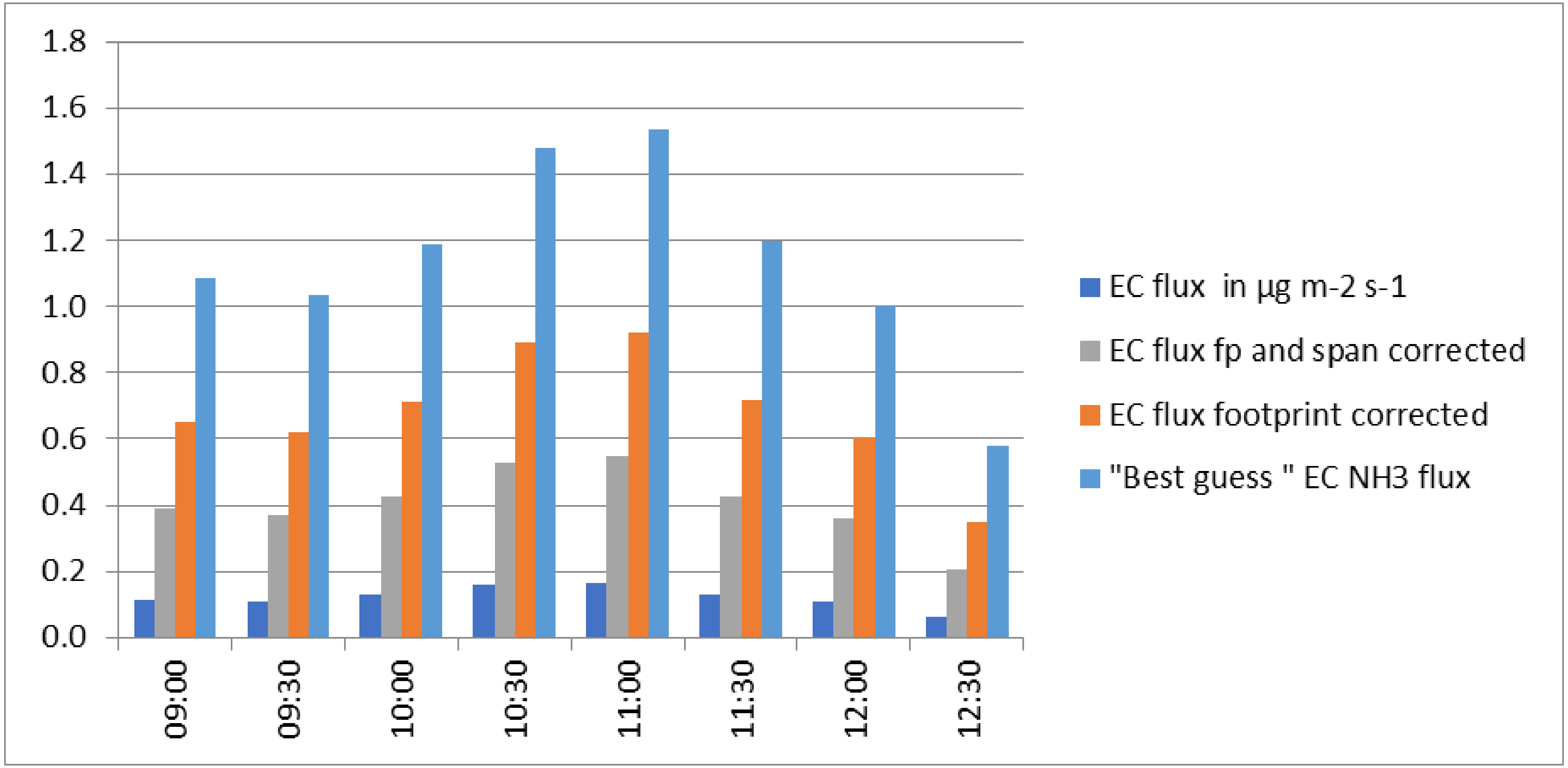
- QCL

- Downwind mini doas
- Amanda wet chemical

NH3 eddy vertical flux: An example of a covariance function

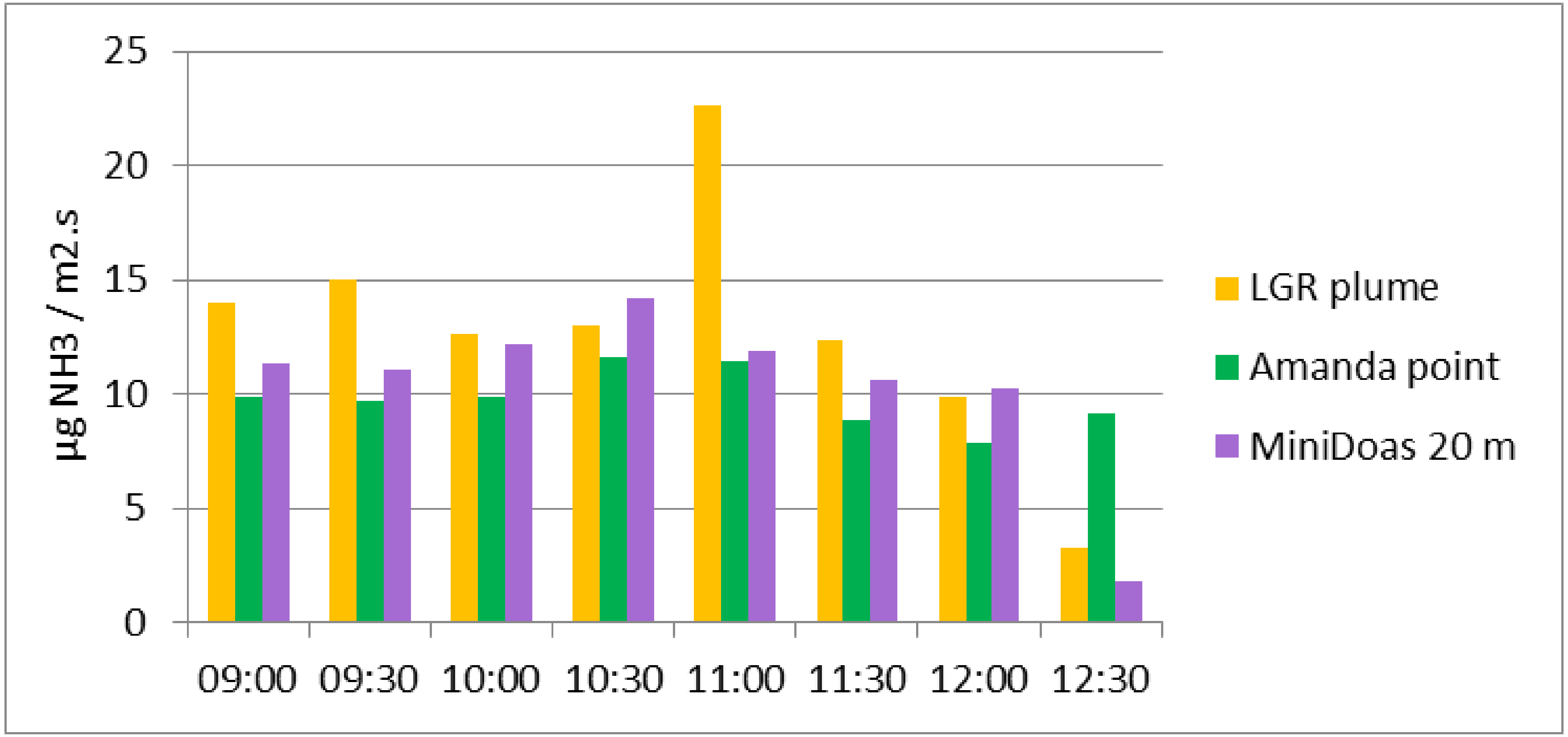


Eddy data in 30 minute blocks

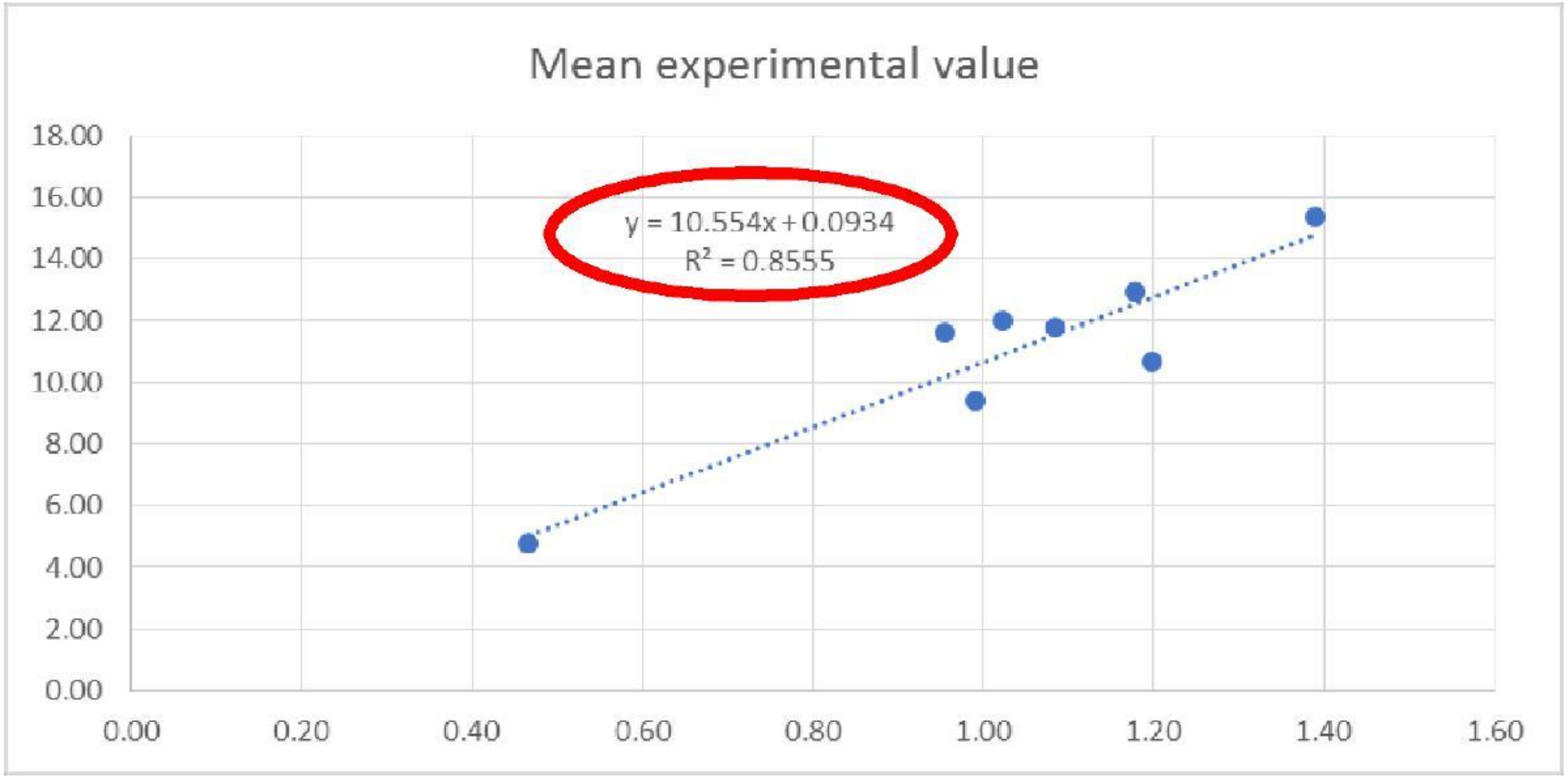


Compare Eddy and other flux:It shows roughly one order of magnitude too low EC fluxes

- The three bls based estimates



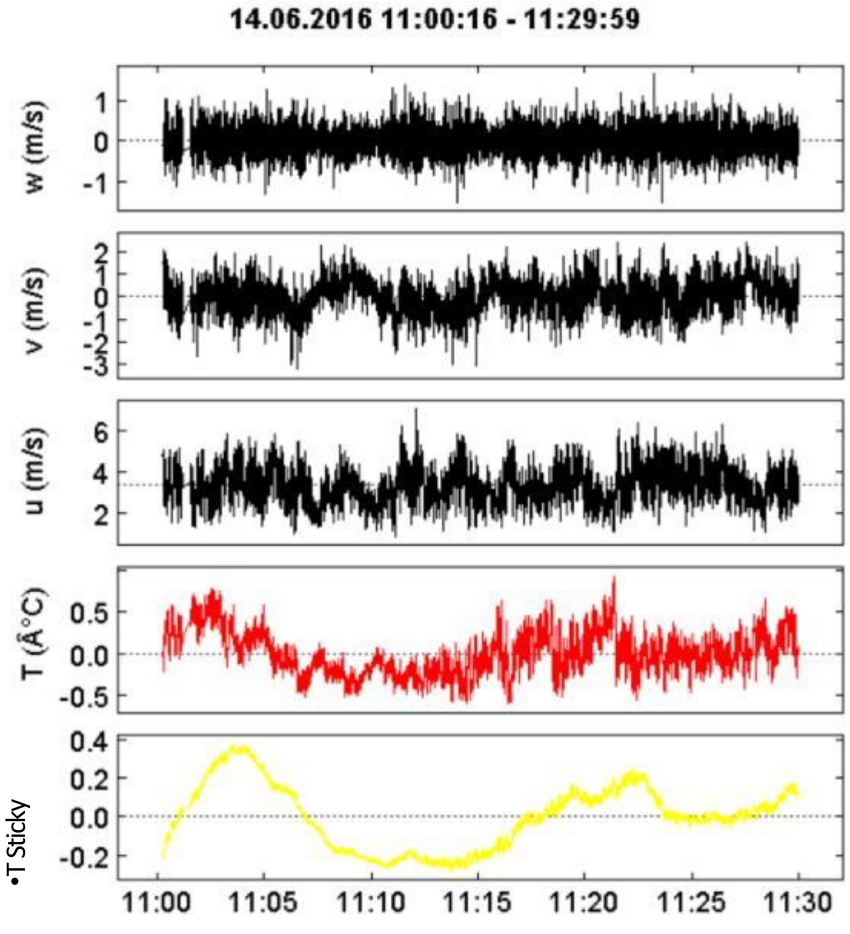
•Or in an x-y graph



•BLSflux

•Eddy flux

Hypothesis:
decoupling effect at the inlet



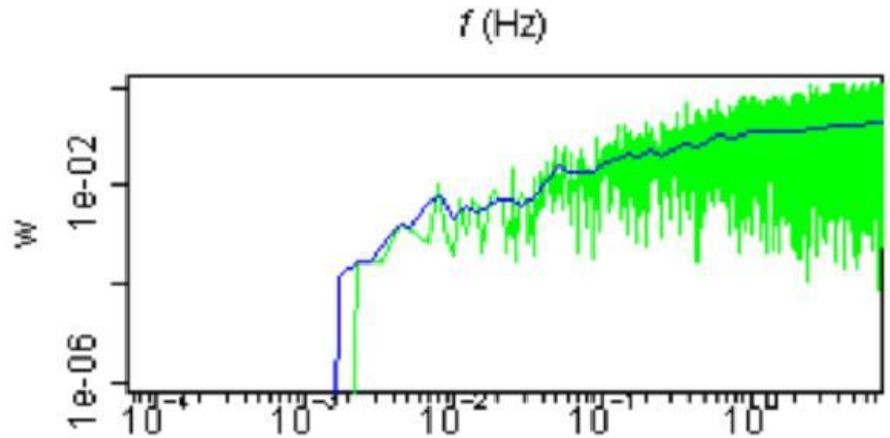
•T Sticky

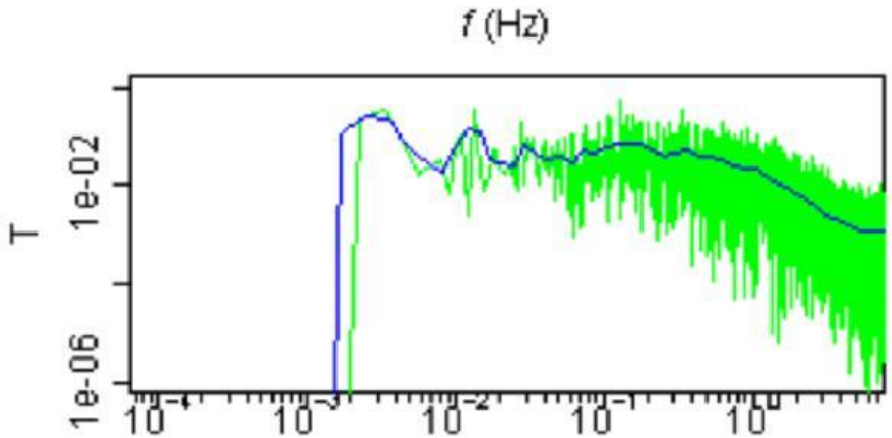
- Assume „Sticky“ or decoupled signal:

- 10% of the signal passes undamped
- 90% of the signal is damped with a
- recursive filter (low pass) and shifted

- R-code:data_int<-rawdata$T
- tempfraction<-0.1*
- data_int+0.9*recursive.filter(vector.s
- hift(data_int,750),700)
- rawdata$T<-tempfraction

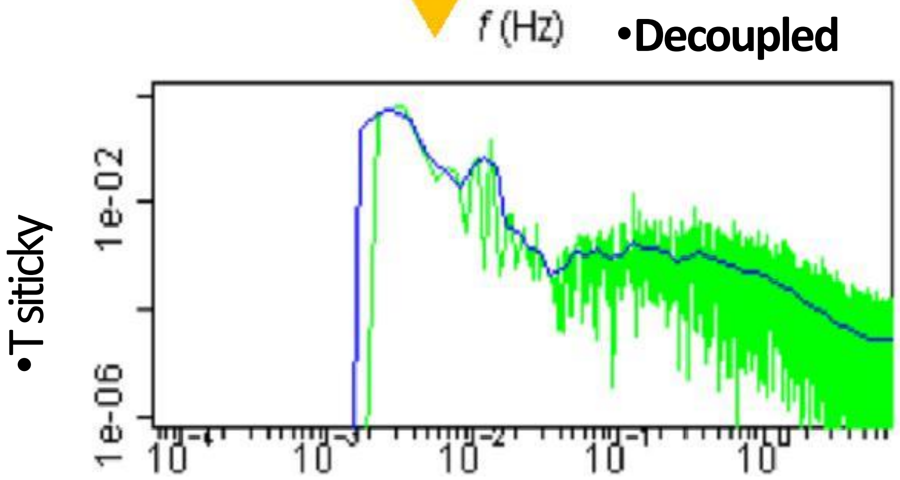
•Decouple effect on power spectra:





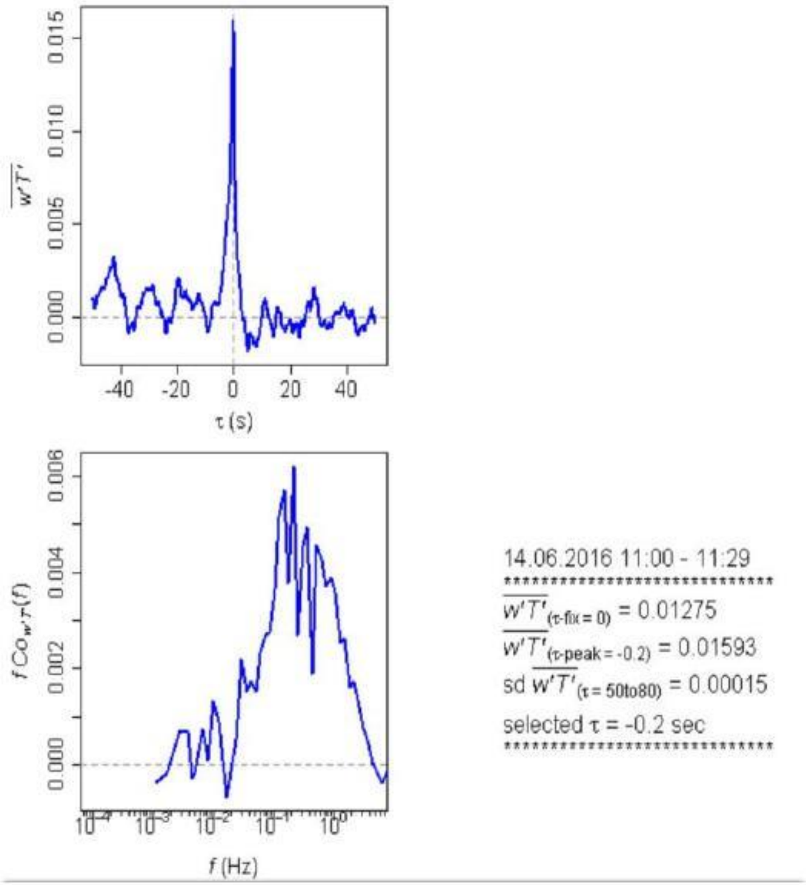
•Original

•Decoupled

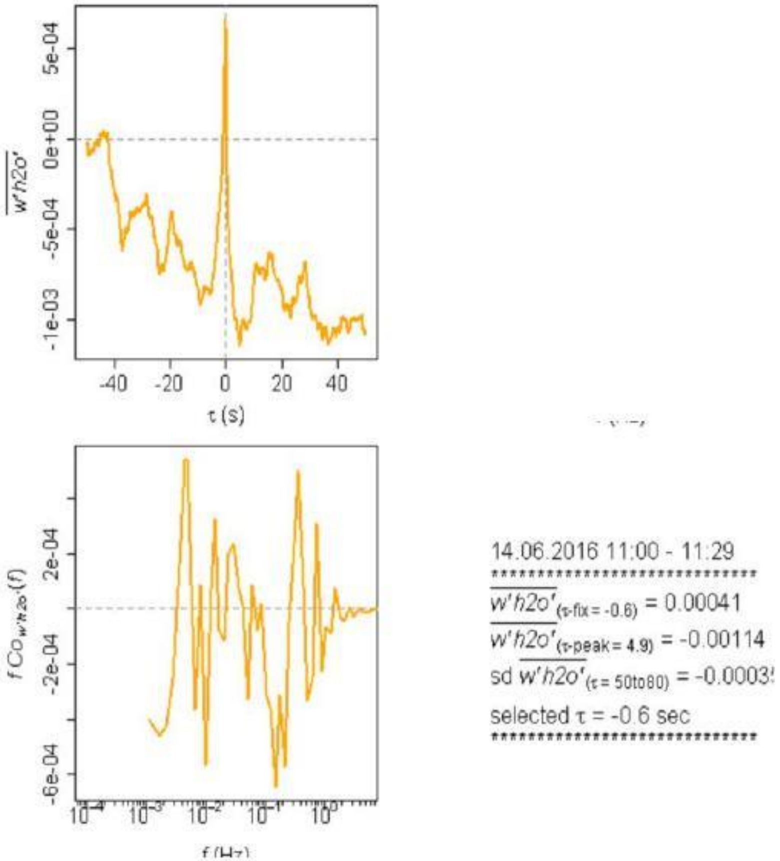


Effect on covariance functions

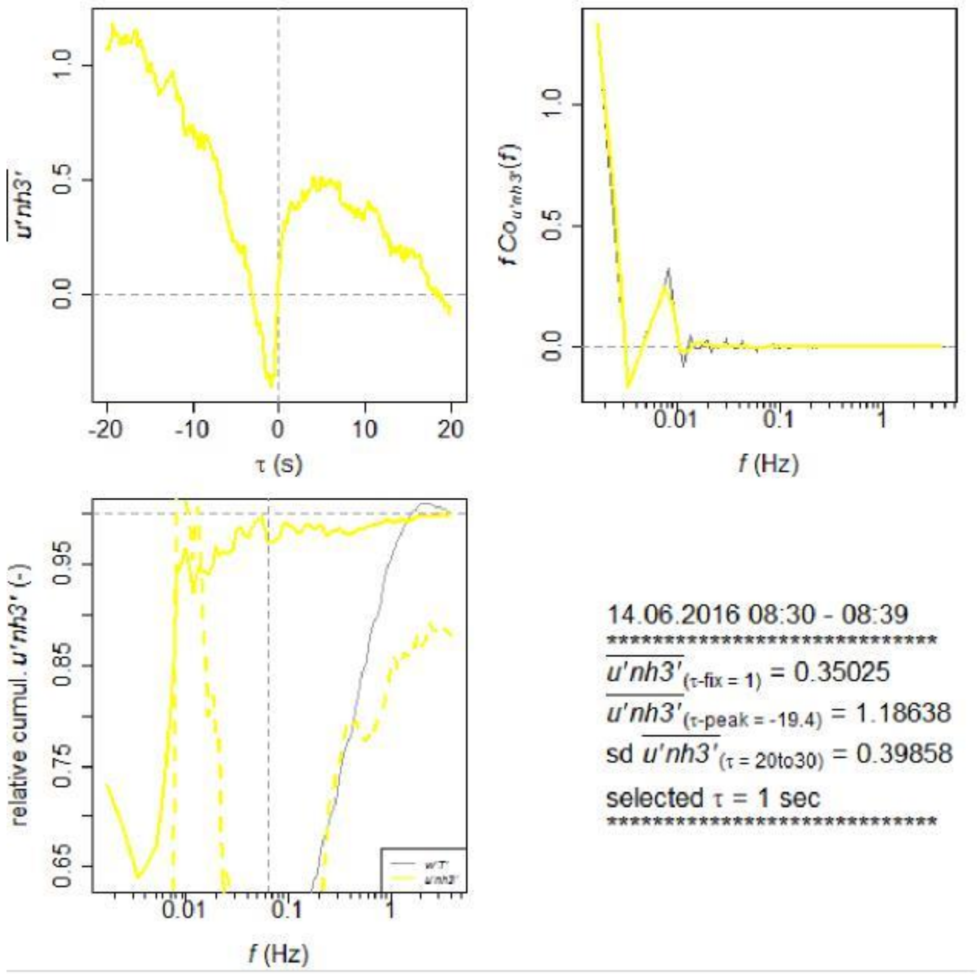
- **Original Heathflux**



Decoupled Heathflux (replaced in the program the water flux)

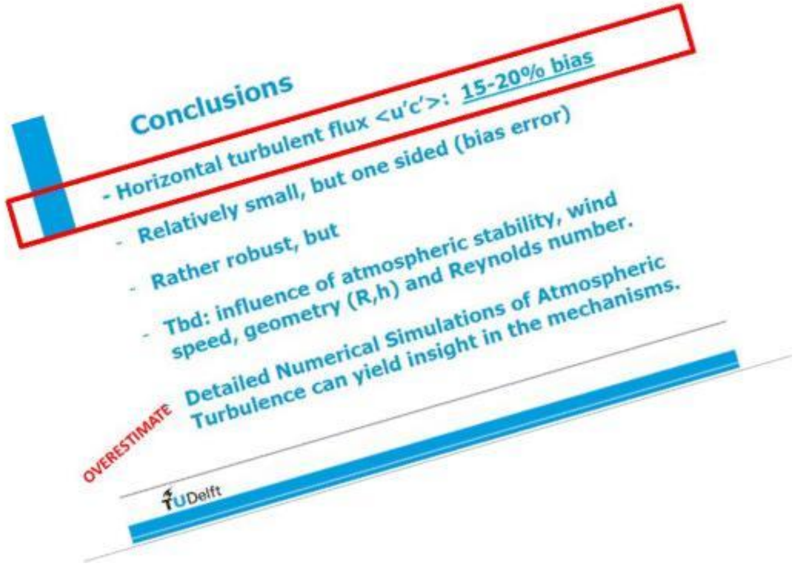


•horizontal….. u’c’ turbulent

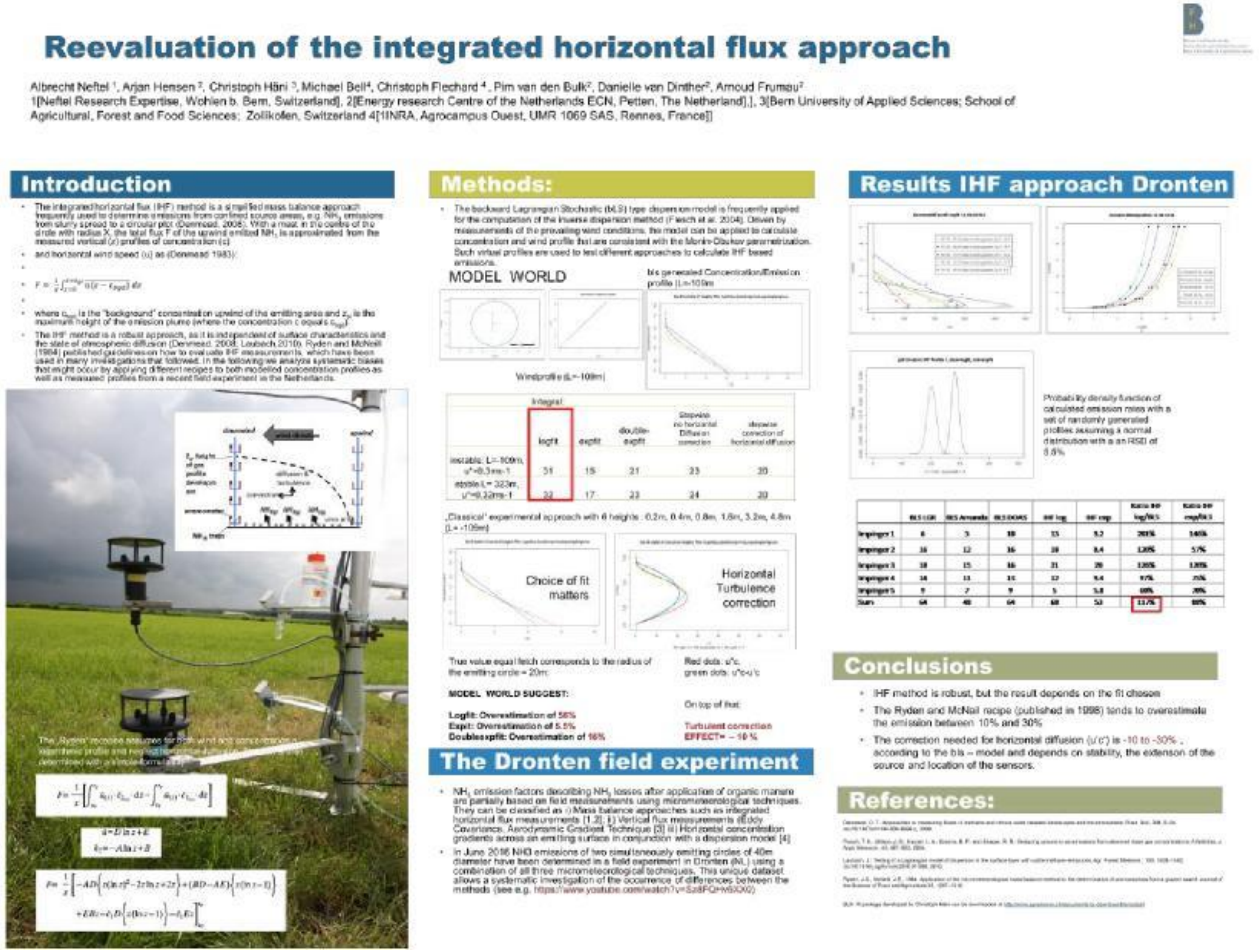


- Damping correction needed
- if vertical eddy flux = IHF flux
  - (use footprint)

•Then u’c’/uavgCavgg: about 10%



•Check poster for more!



•Poster in Session
•AS2.2/SSS9.26 - Air-Land
•Interactions (General Session)
•(co-sponsored by iLEAPS) (co-
•organized):

•EGU2017-4929
•1 Reevaluation of the
•integrated horizontal flux
•approach by Albrecht Neftel
•et al.