



27 years of Brewer total ozone column measurements in Sodankylä

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Karppinen, T., Lakkala, K., Karhu, J. M.,
Heikkinen, P., Kivi, R., and Kyrö, E.: Brewer
spectrometer total ozone column
measurements in Sodankylä, *Geosci.
Instrum. Method. Data Syst. Discuss.*,
doi:10.5194/gi-2015-41, accepted, 2016.



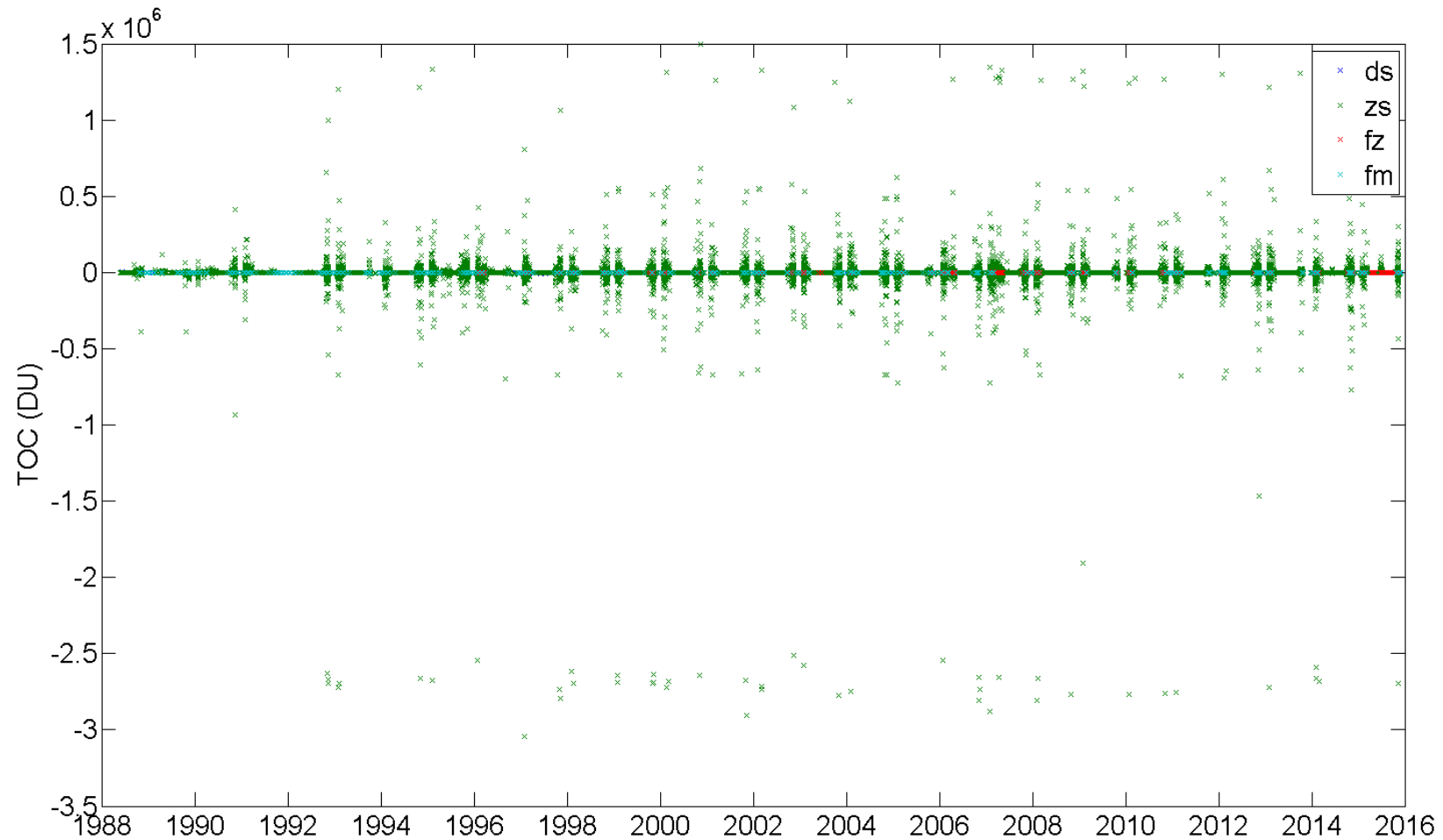


Motivation

- “Demonstration of harmonised historical data consistently re-processed across participating European stations (where applicable and possible).”
– MoU COST-ES1207 WG2 milestone
- Last update to WOUDC in 2010!
- Caught up in the Quality assurance part

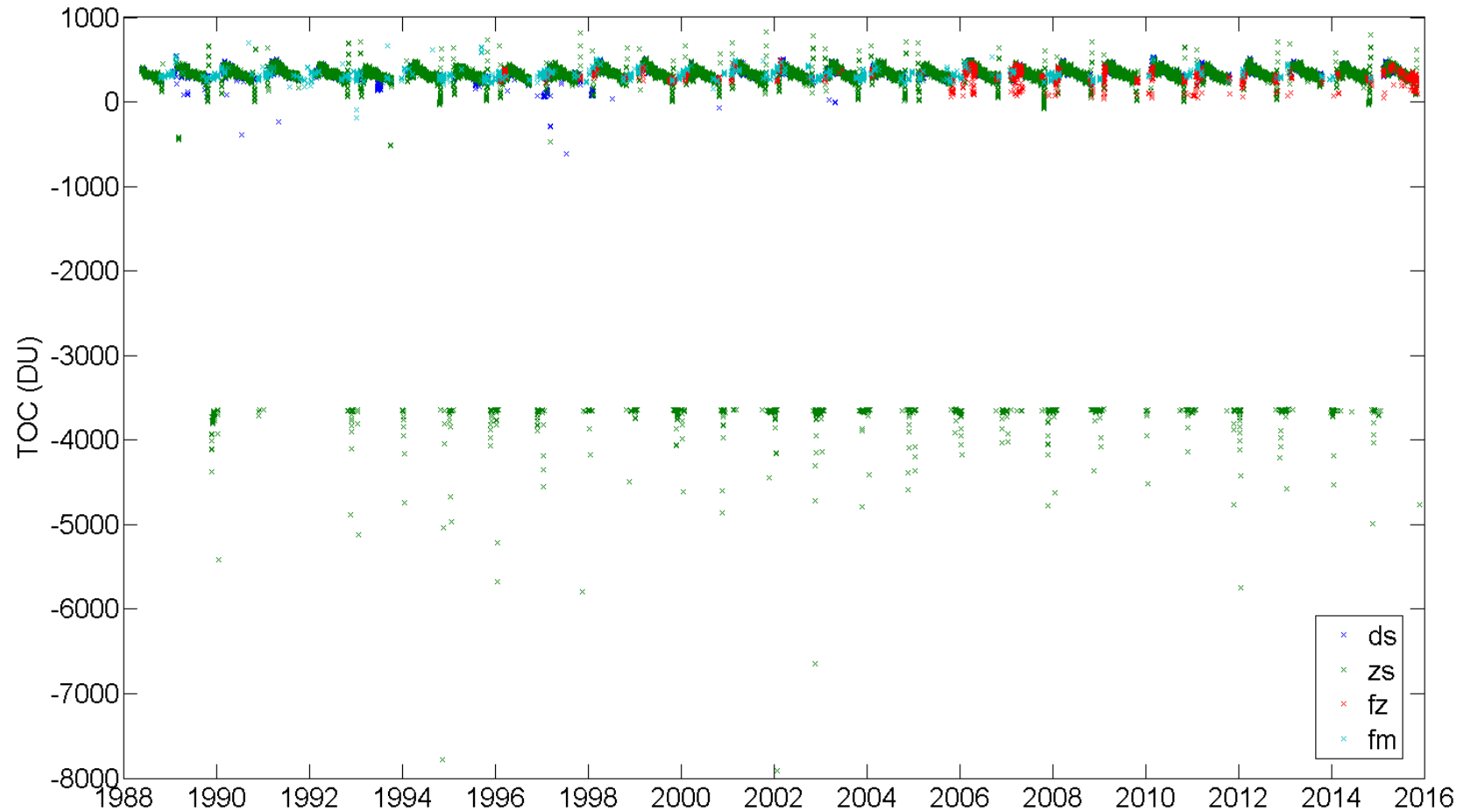


All measurements, N=775689



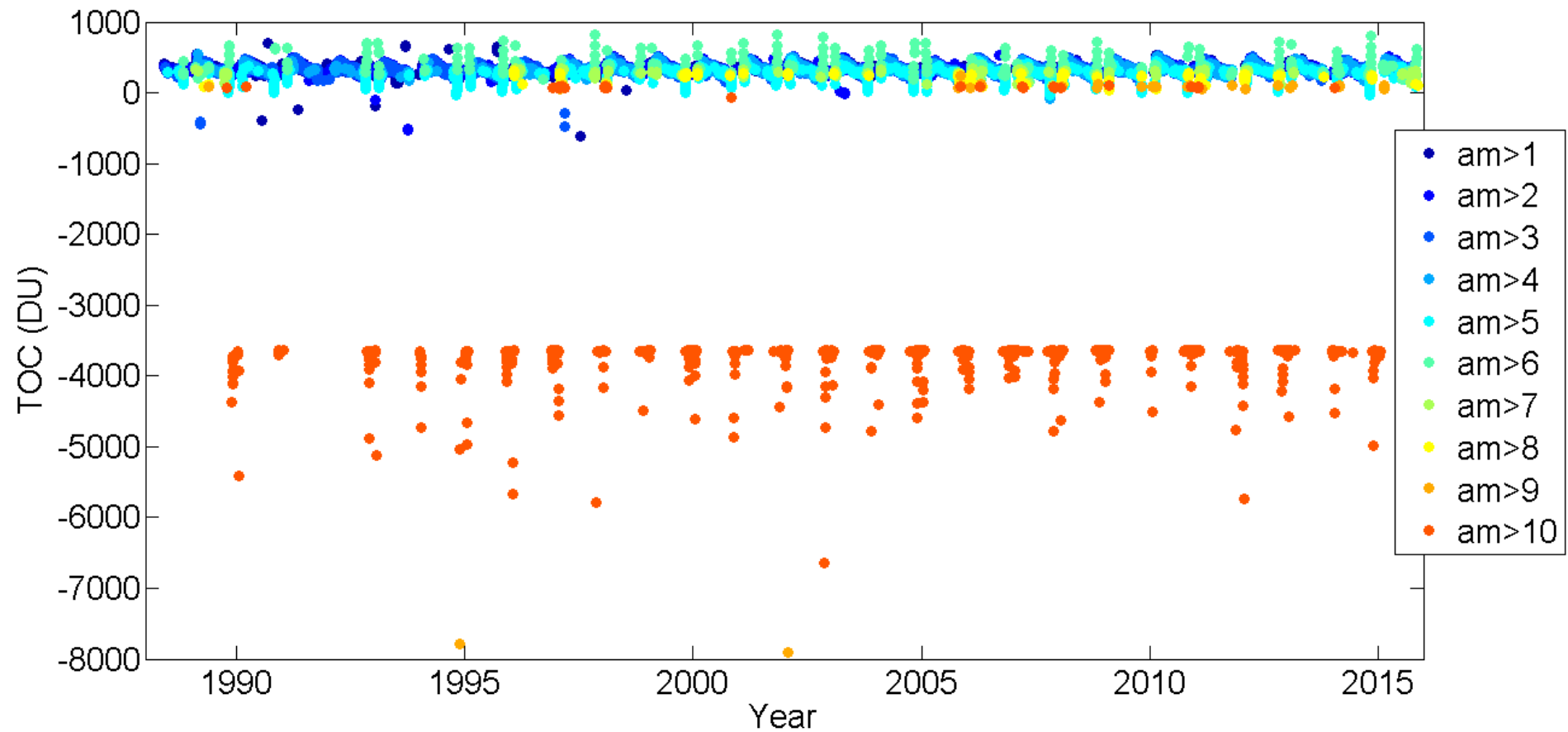


Std limit, N=244548 (~32%)



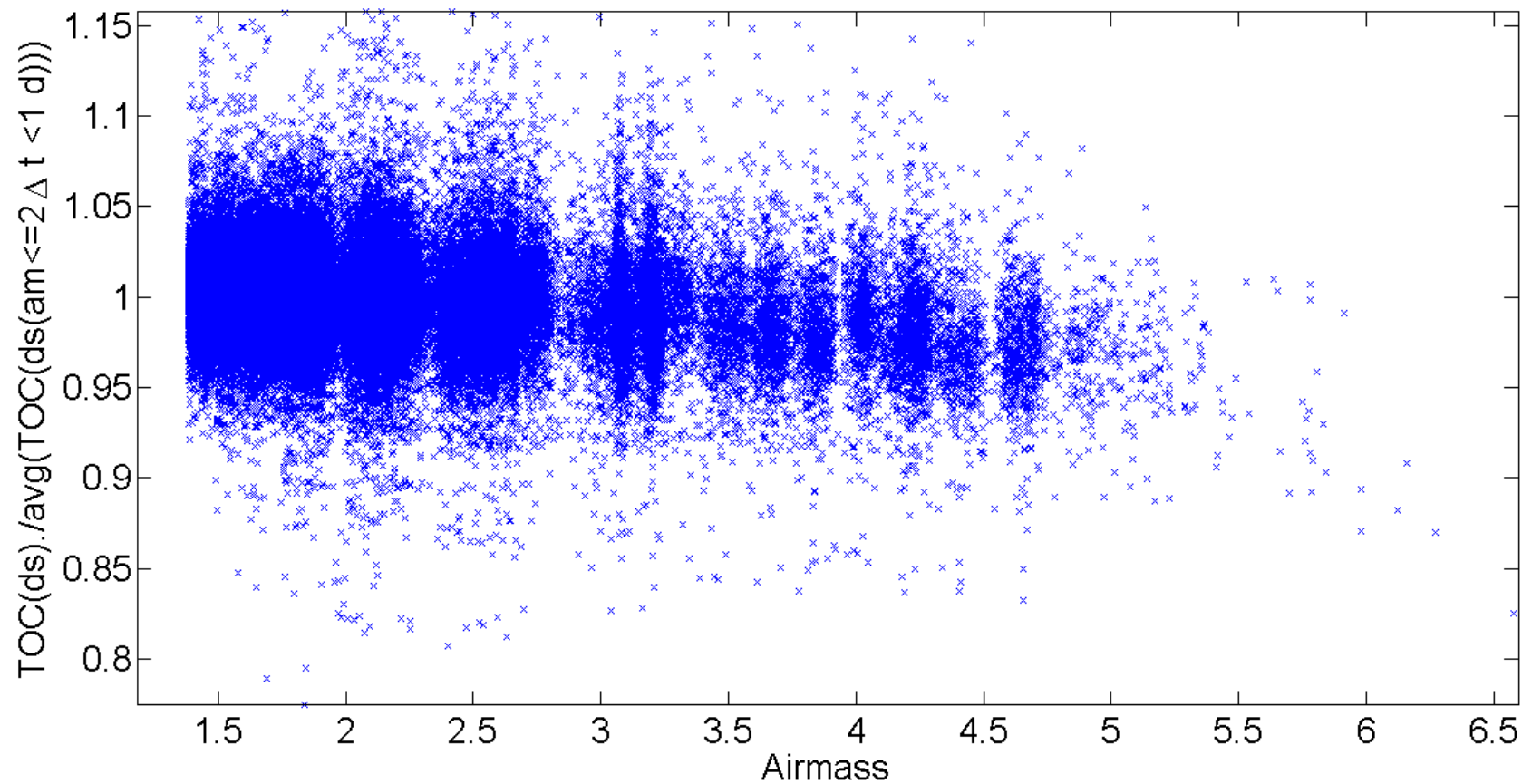


Air mass



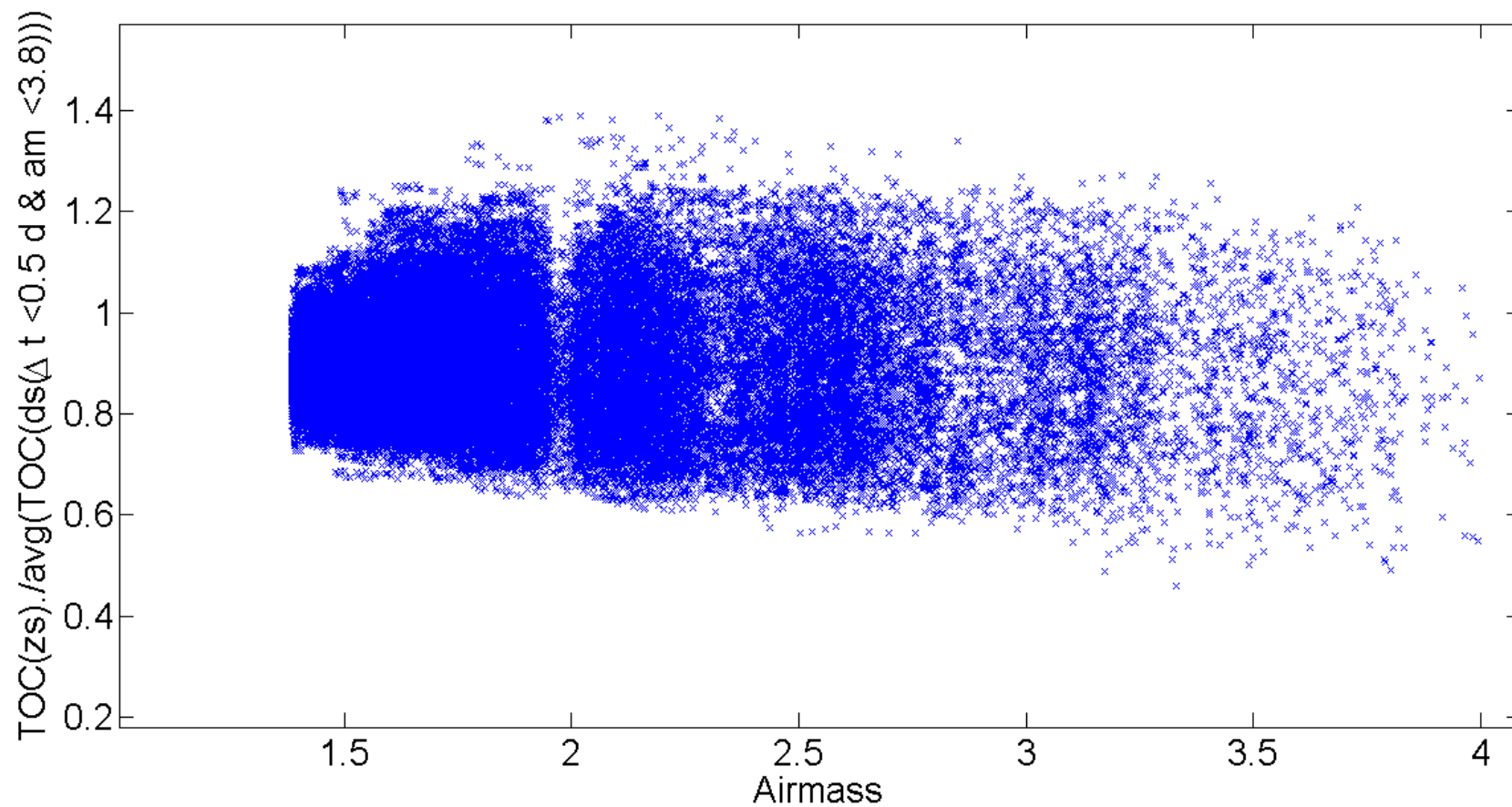


Air mass



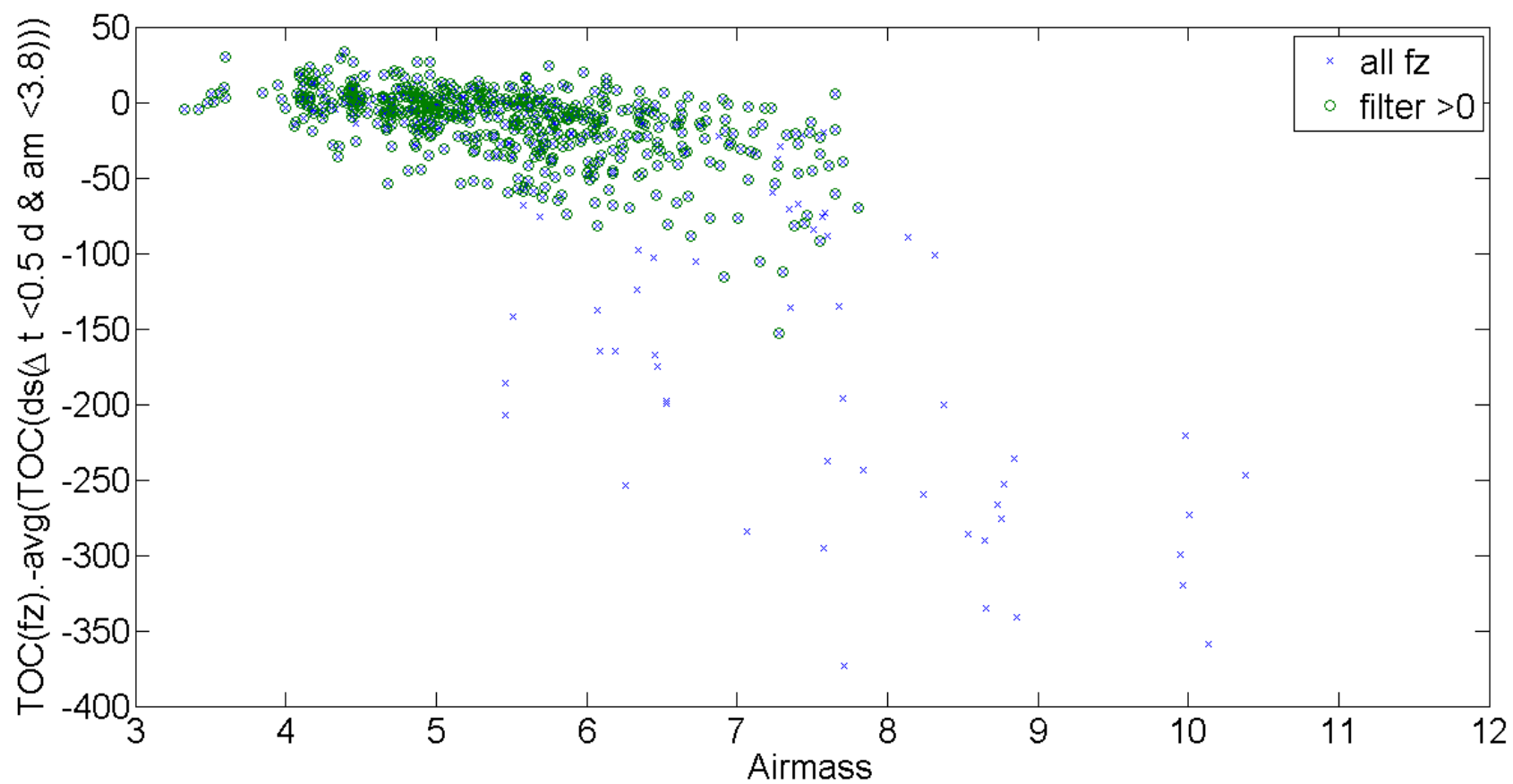


Air mass



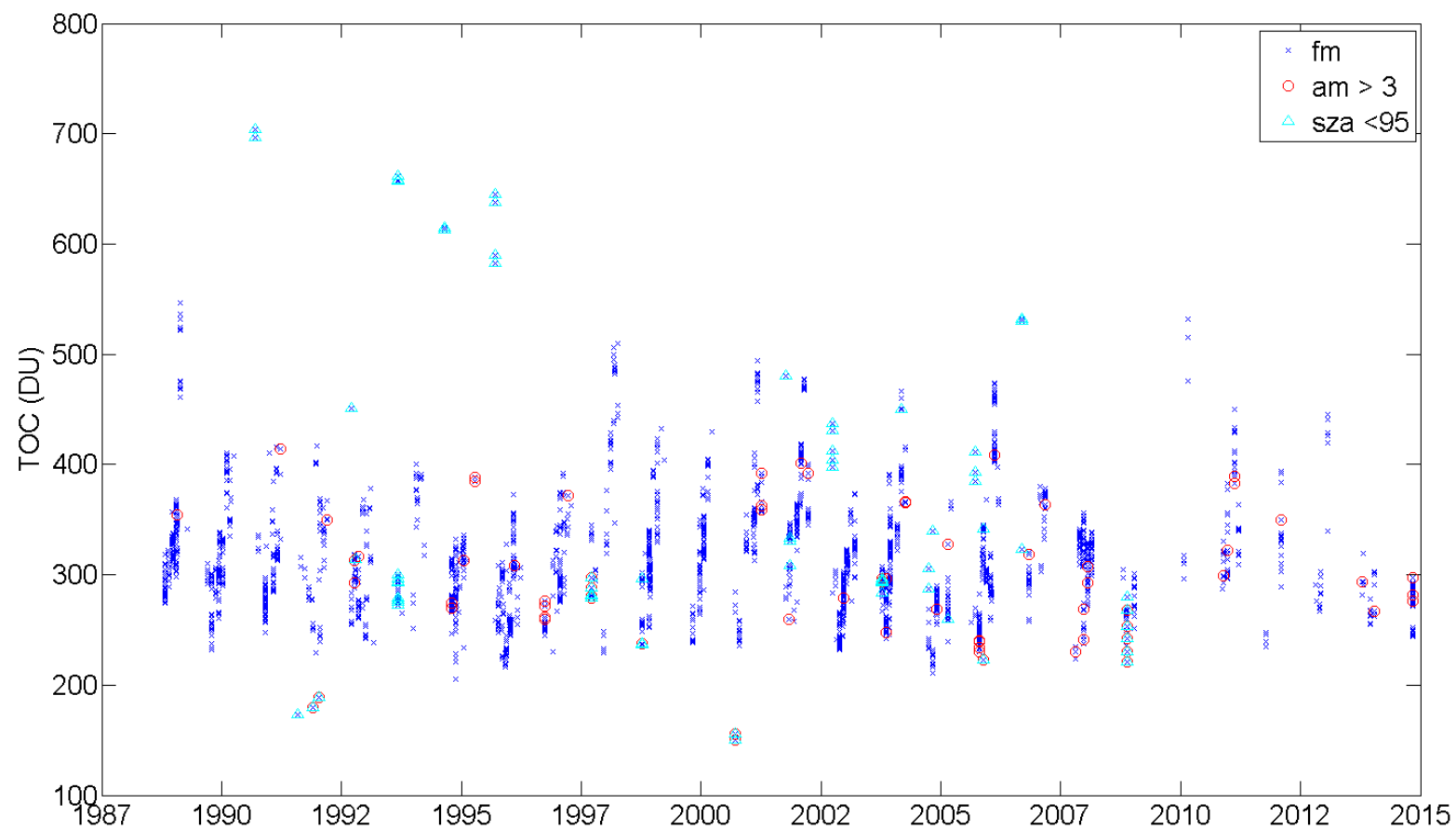


Air mass



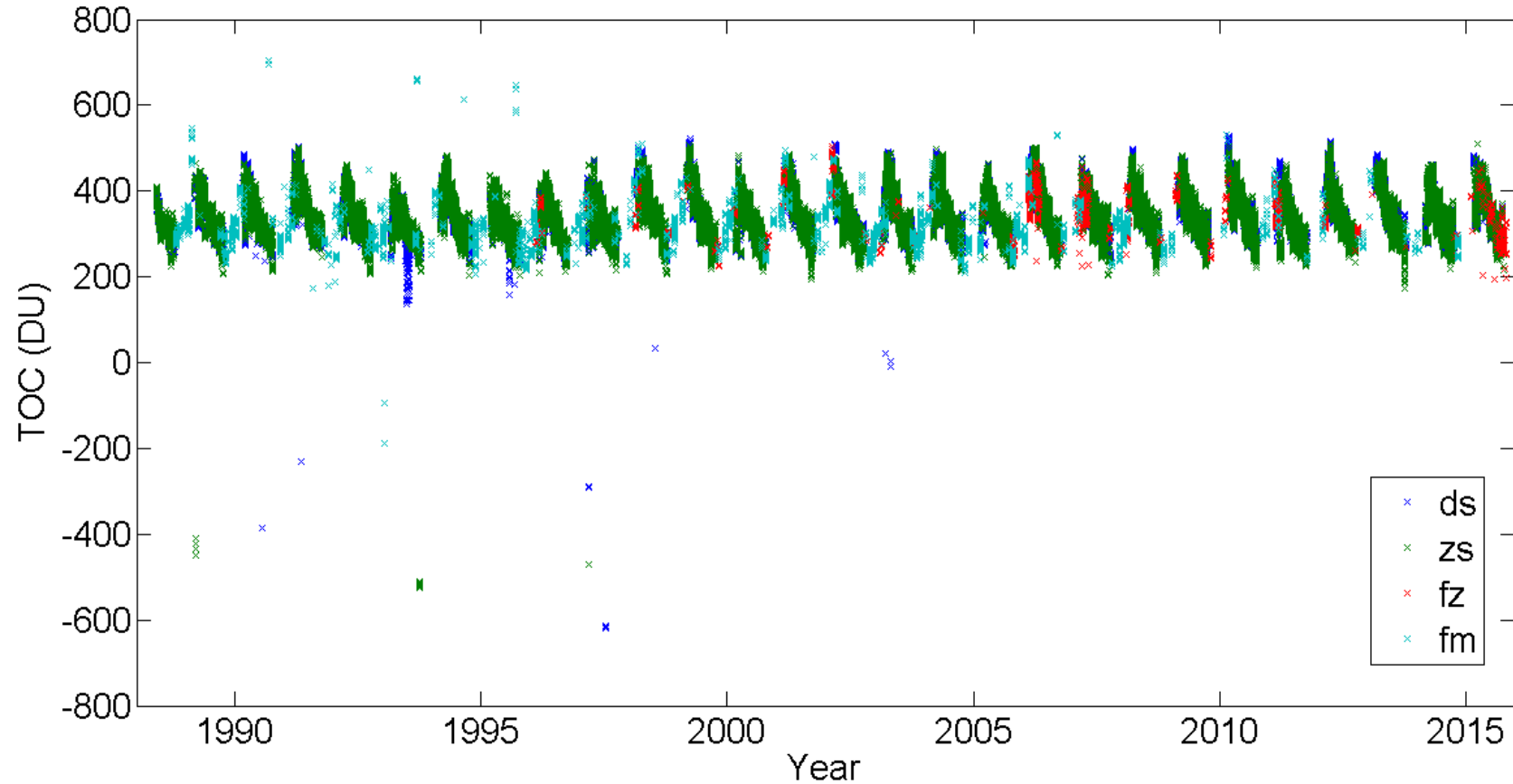


Air mass



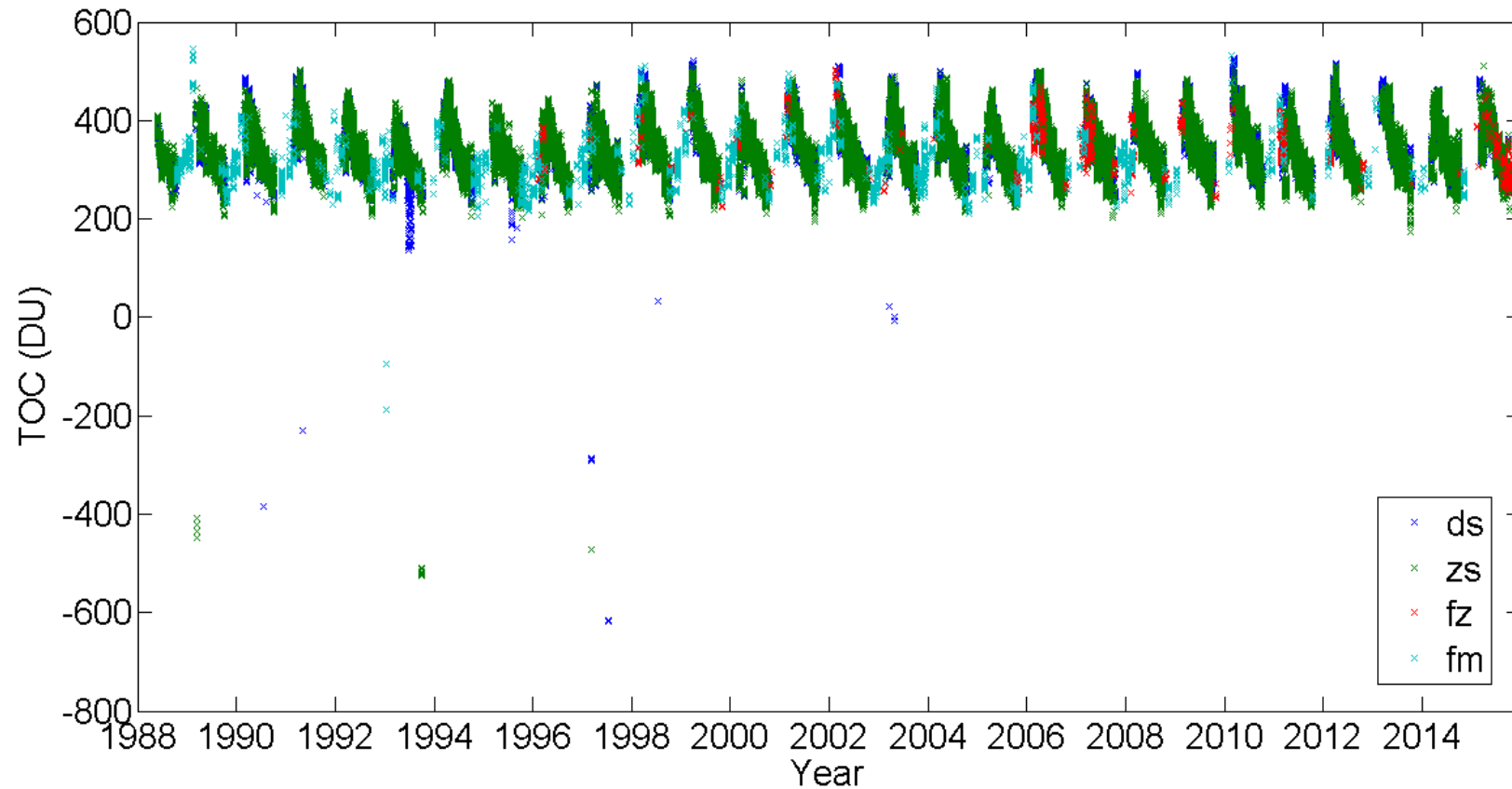


Air mass limit, $N=229576$ (~30%)



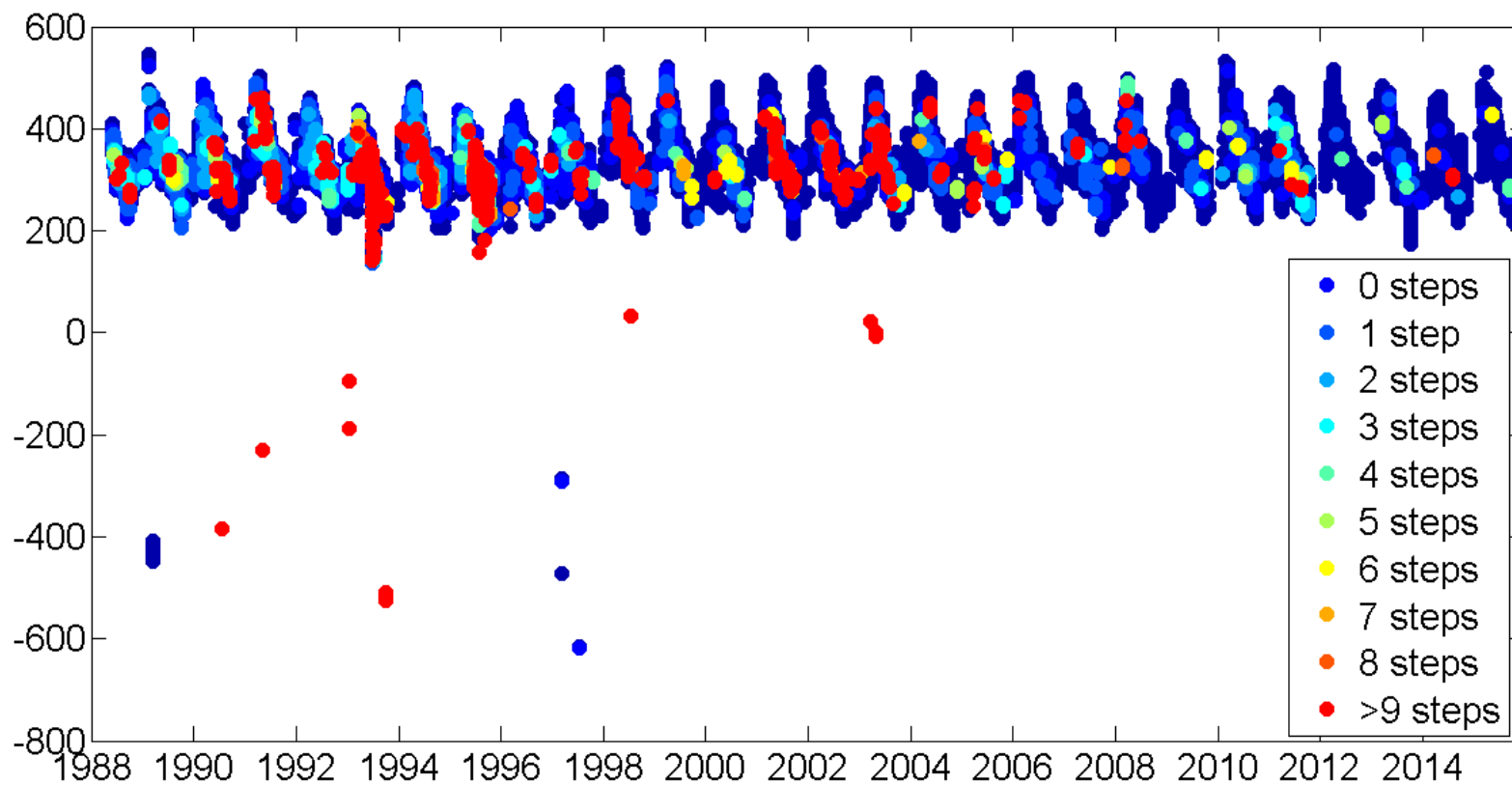


Additional filters, N=229470 (~30%)



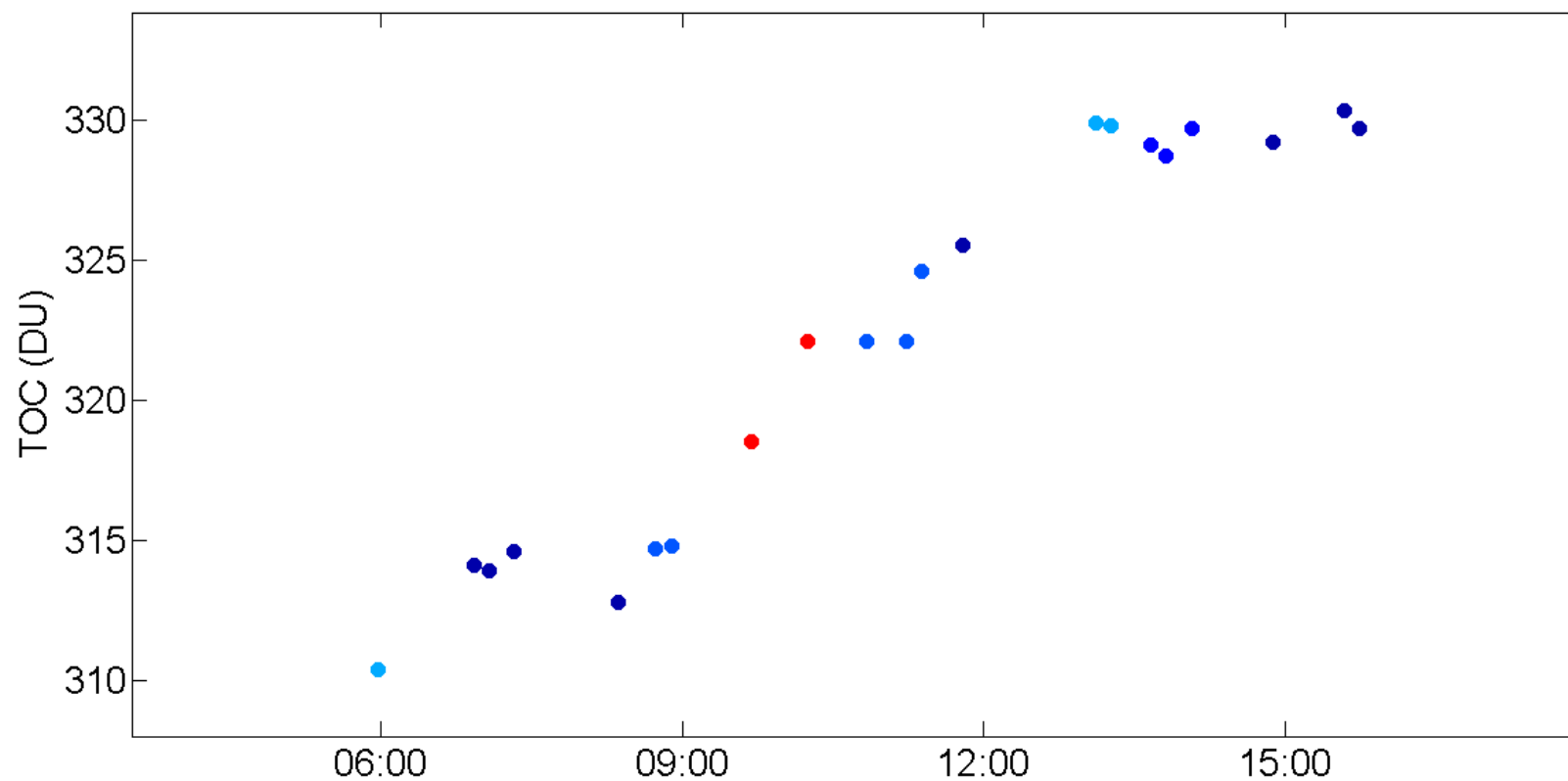


Hg check





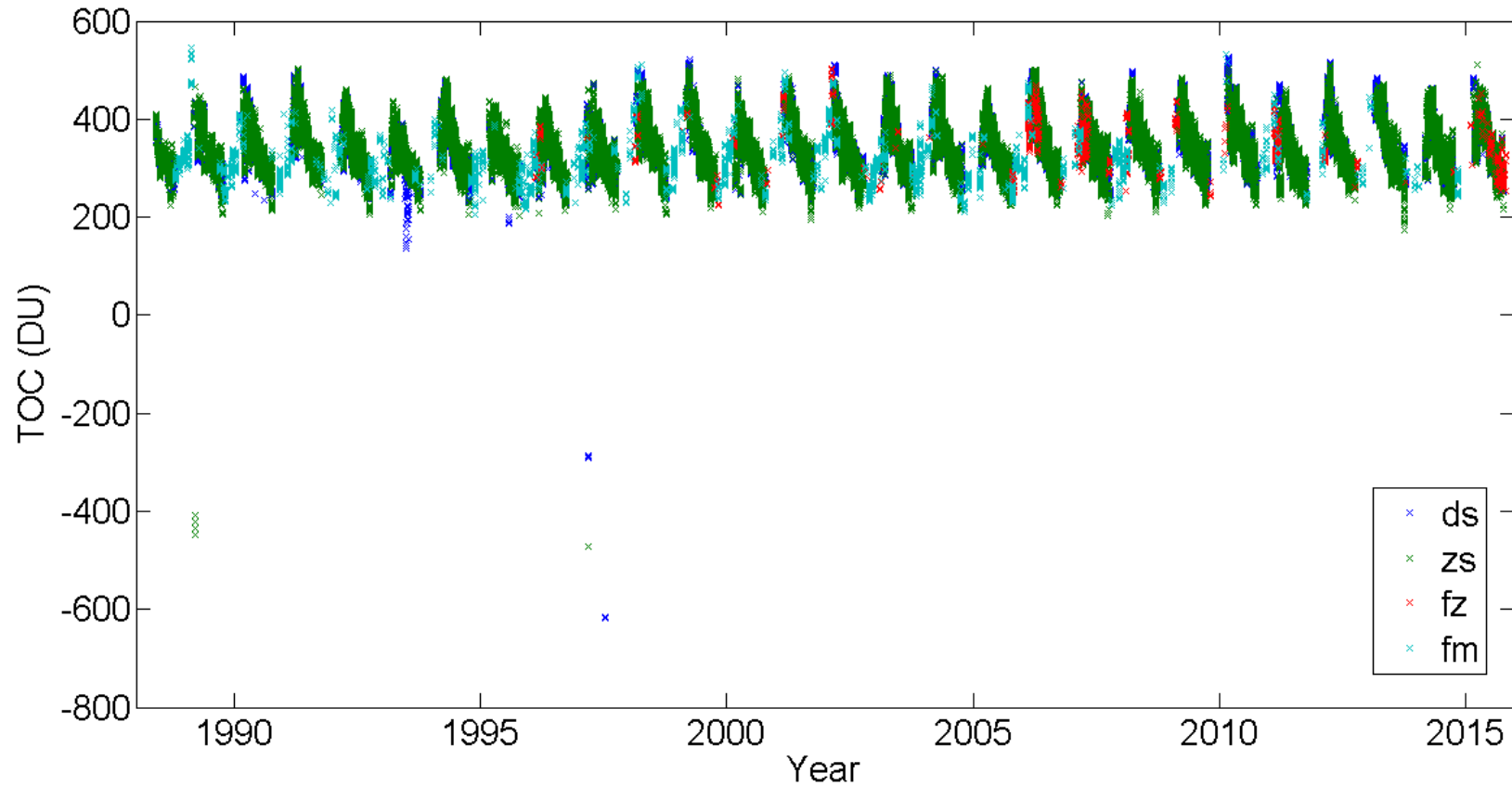
Hg check



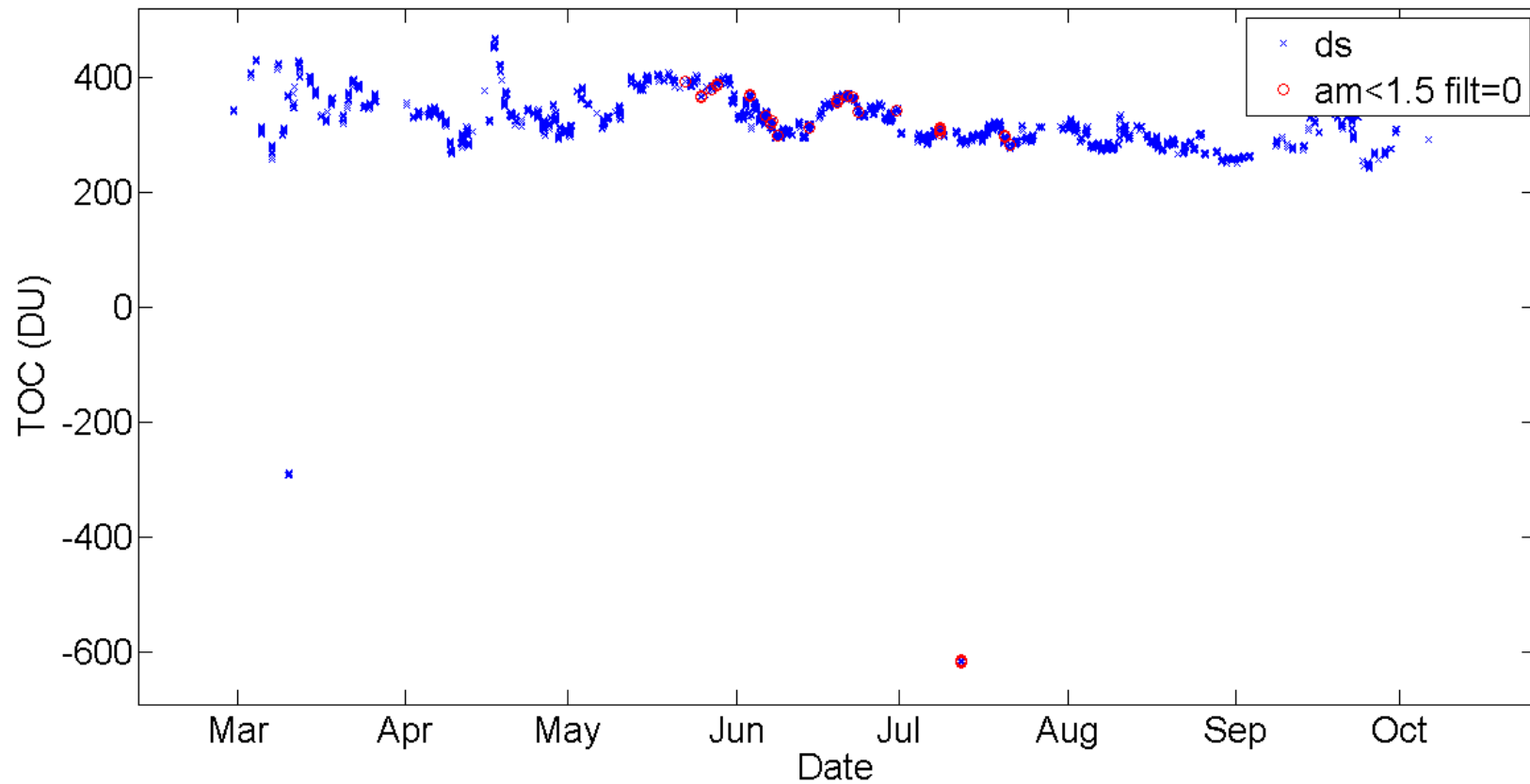
● 0 steps ● 1 step ● 2 steps ● 3 steps ● 4 steps ● 5 steps ● 6 steps ● 7 steps ● 8 steps ● >9 steps



3 step limit, N=225913 (~29%)

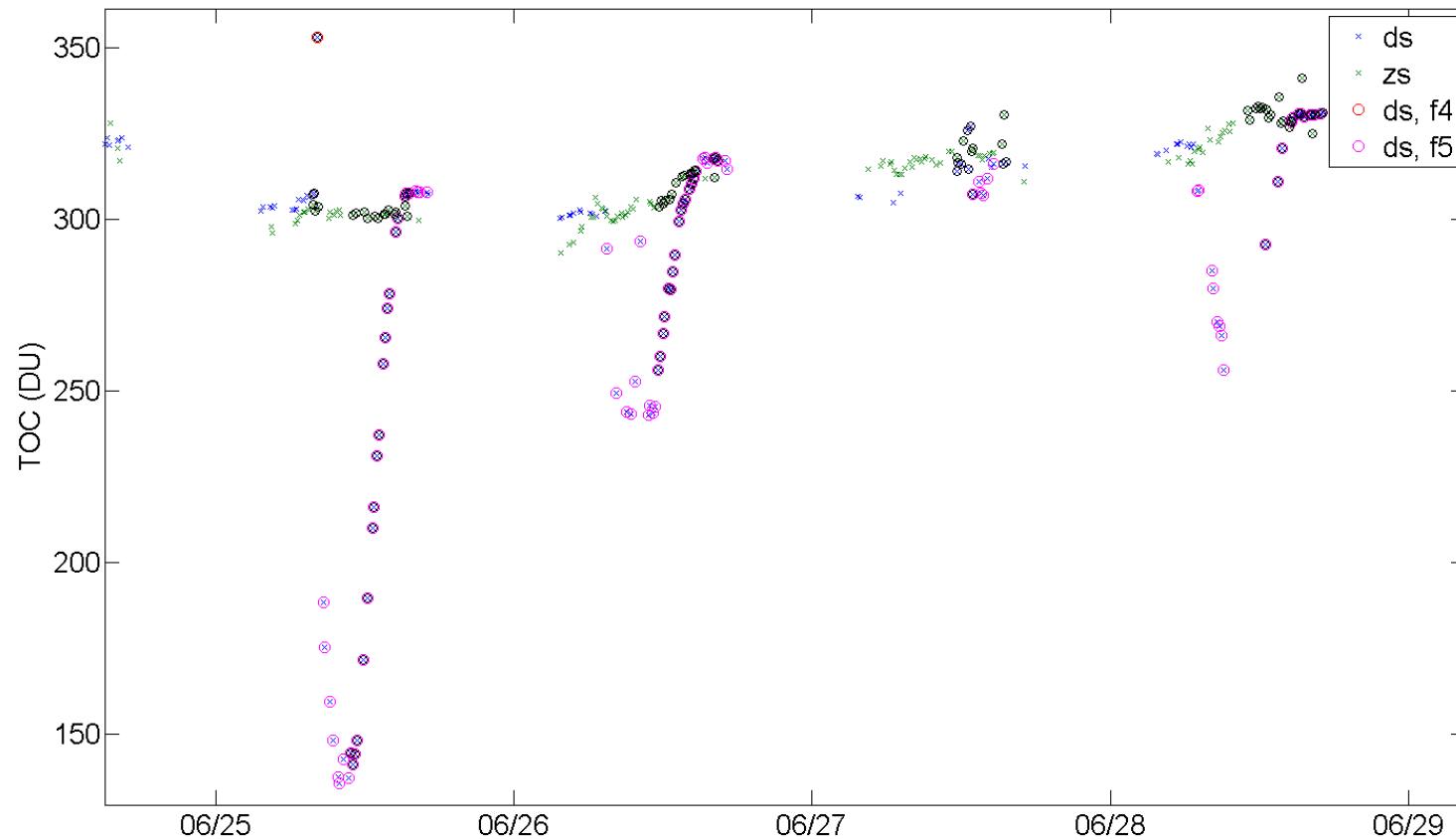


1997, 0 filter high sun



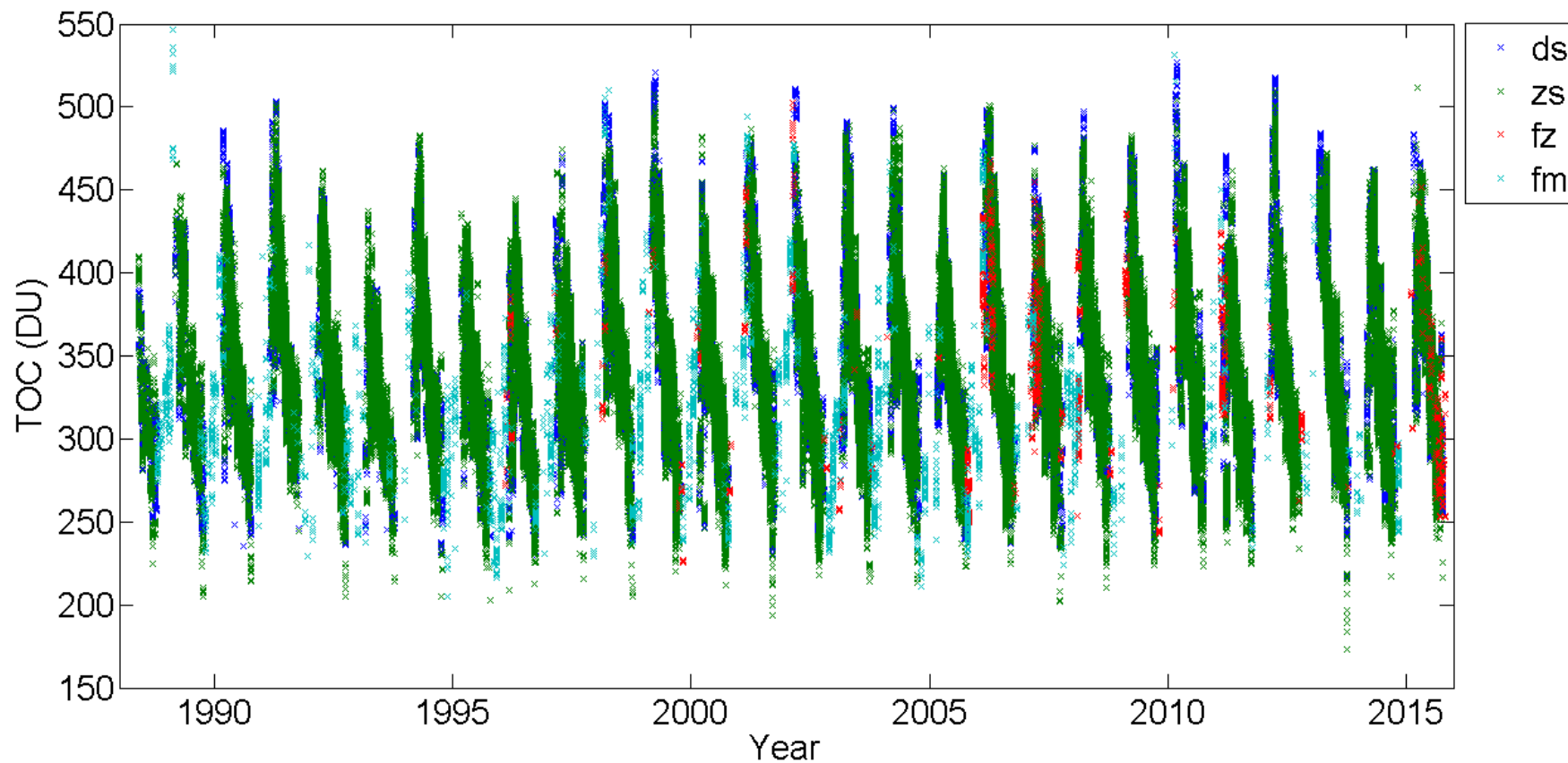


Filters 4 & 5 for Sodankylä, 1993

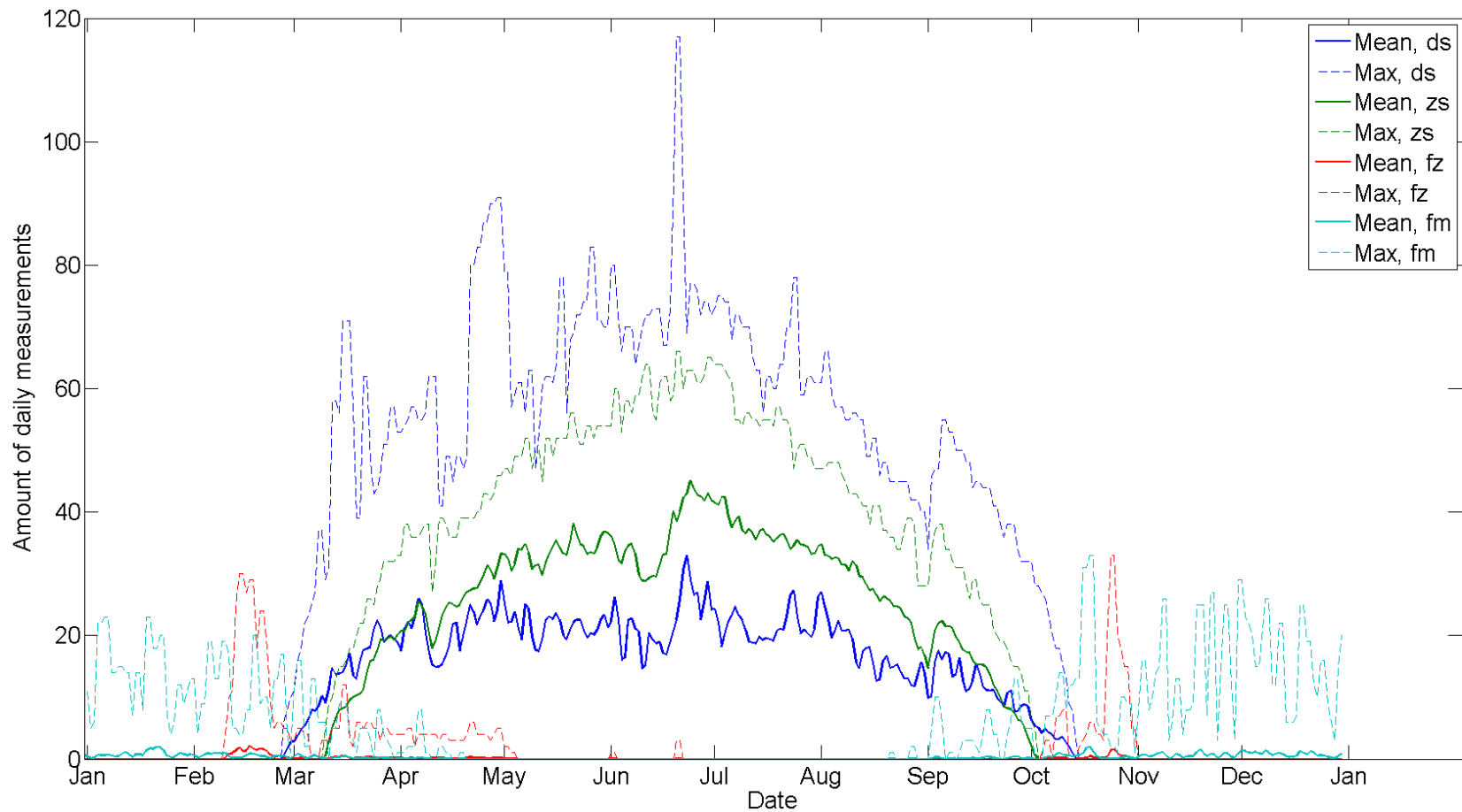




Finally, $N=225798$ (~29%)

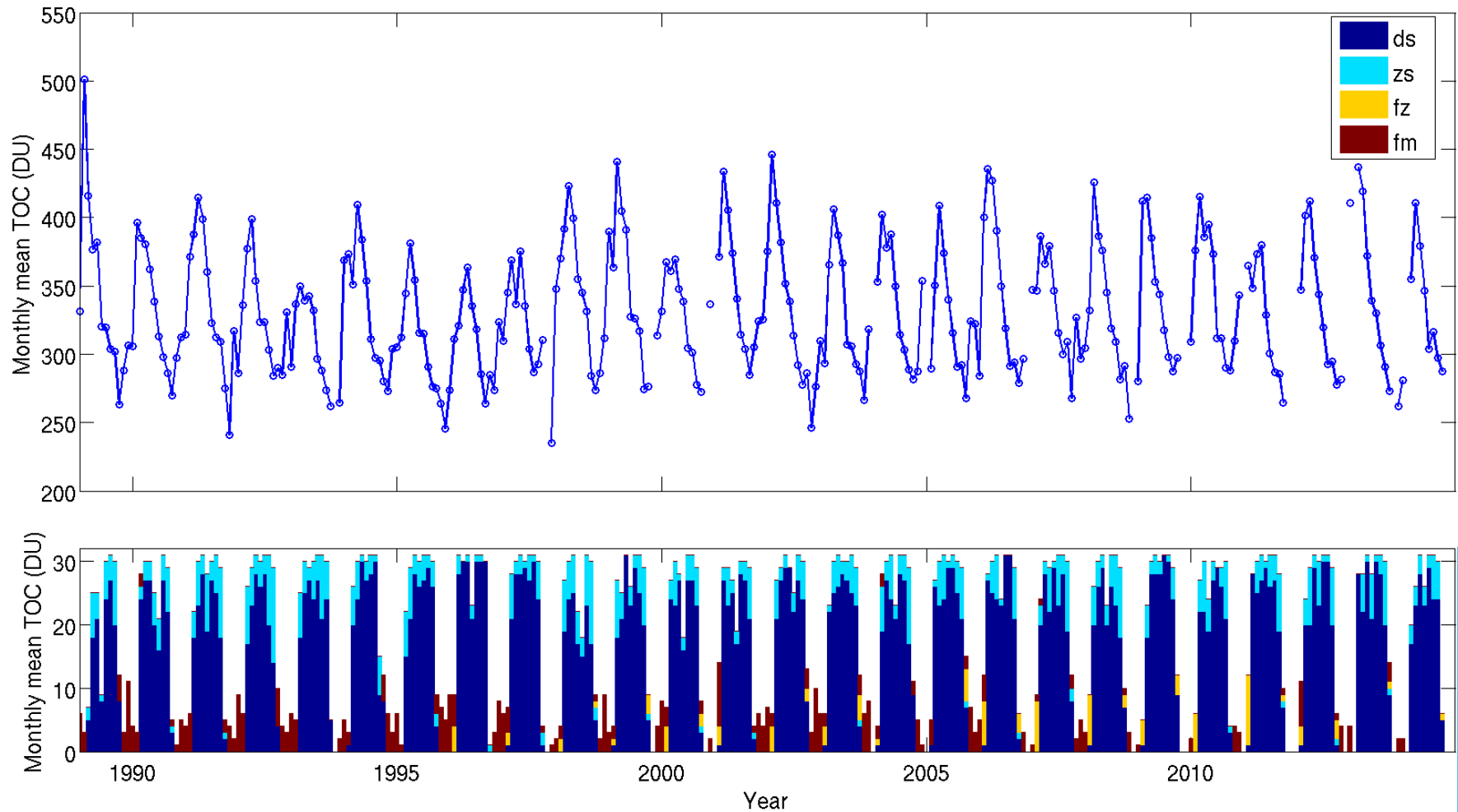


Measurement distribution



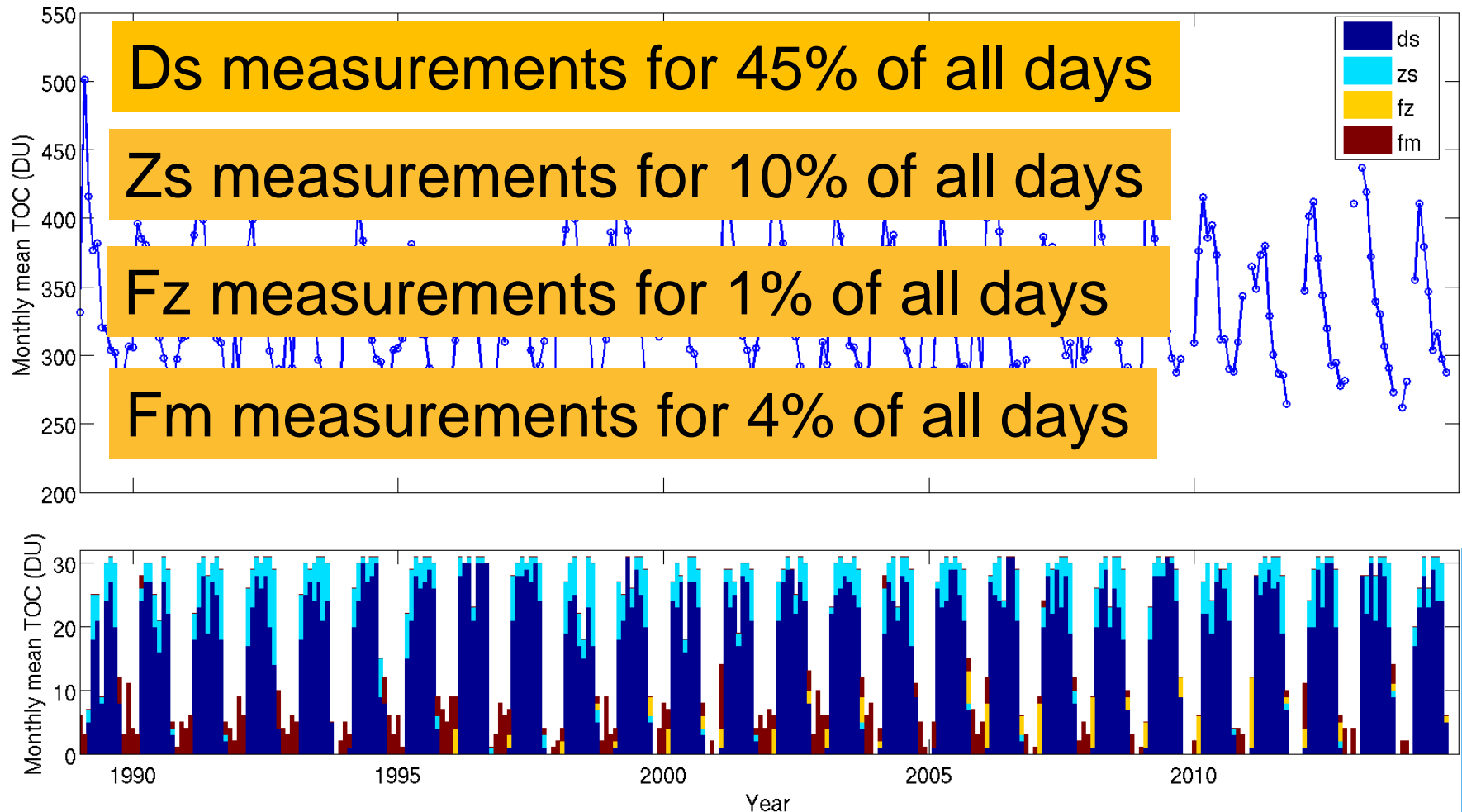


Measurement distribution





Measurement distribution





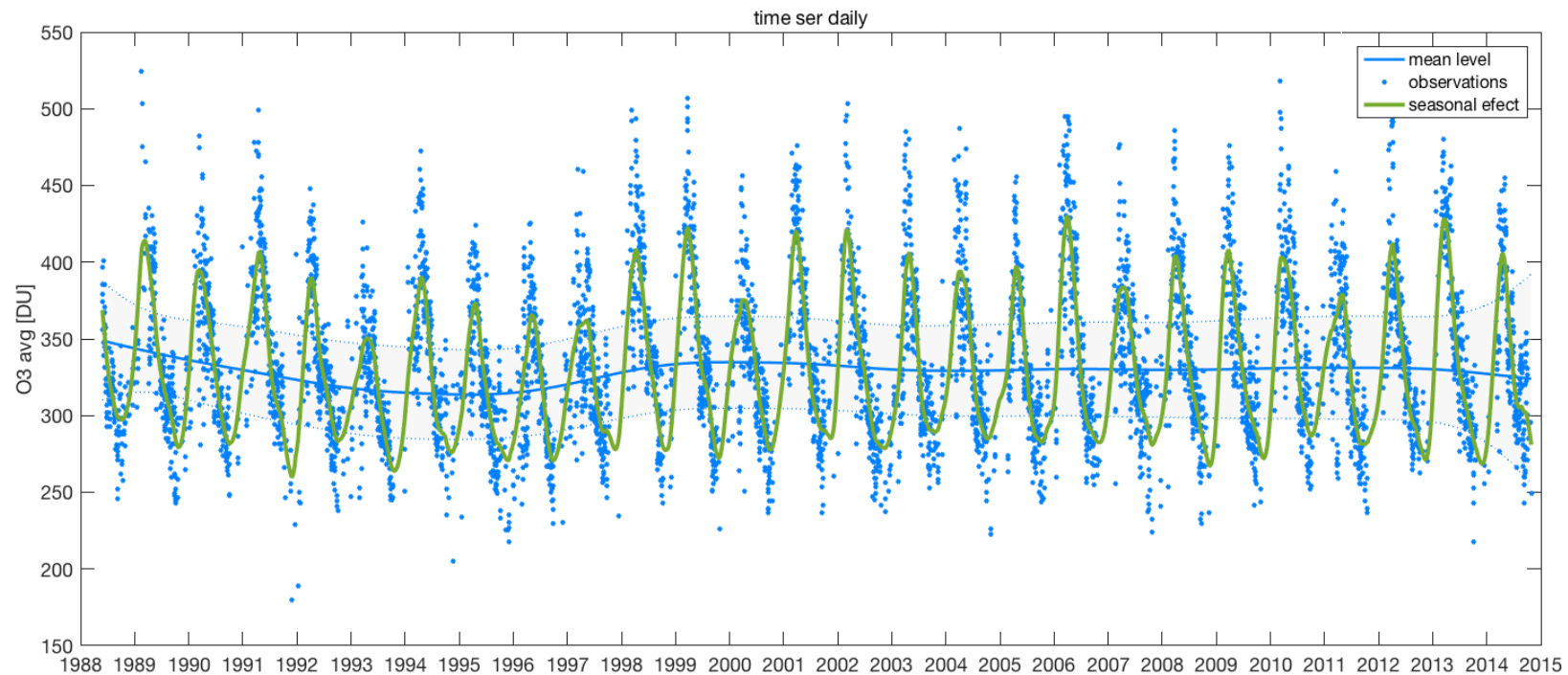
Conclusions

- Long time series gives means to recognise bad data automatically
- This does not remove the need for manual checking
- The time series of Sodankylä has gone through some Quality assurance, but still work to be done (SL lamps)
 - Analysis to be made for QOS2016
 - Comparison to database product



Measurement distribution

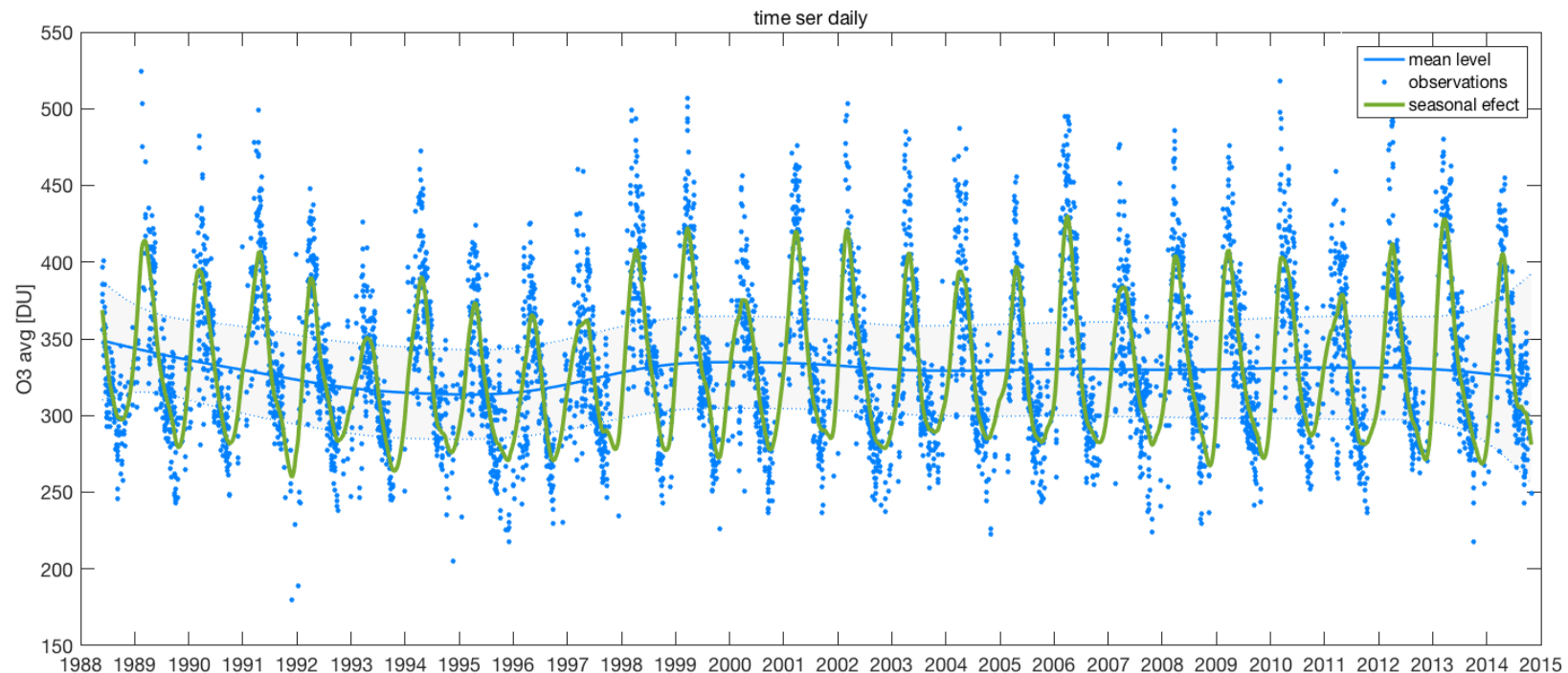
- By Marko Laine





Measurement distribution

- By Marko Laine



Thank you!