

Current status of the ongoing 3rd ATM-Challenge 2019

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ZAMG: Zentralanstalt fuer Meteorologie und Geodynamik, Vienna, Austria

CTBTO/IDC: Comprehensive Nuclear Test-Ban Treaty Organization/International Data Center, Vienna, Austria

CMC: Canadian Meteorological Center, Dorval, Canada

NOAA-ARL: National Oceanic & Atmospheric Administration - Air Resources Laboratory, Maryland, USA



ZAMG
Zentralanstalt für
Meteorologie und
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1. The 17 participants (by April., 30th) and their model set-ups

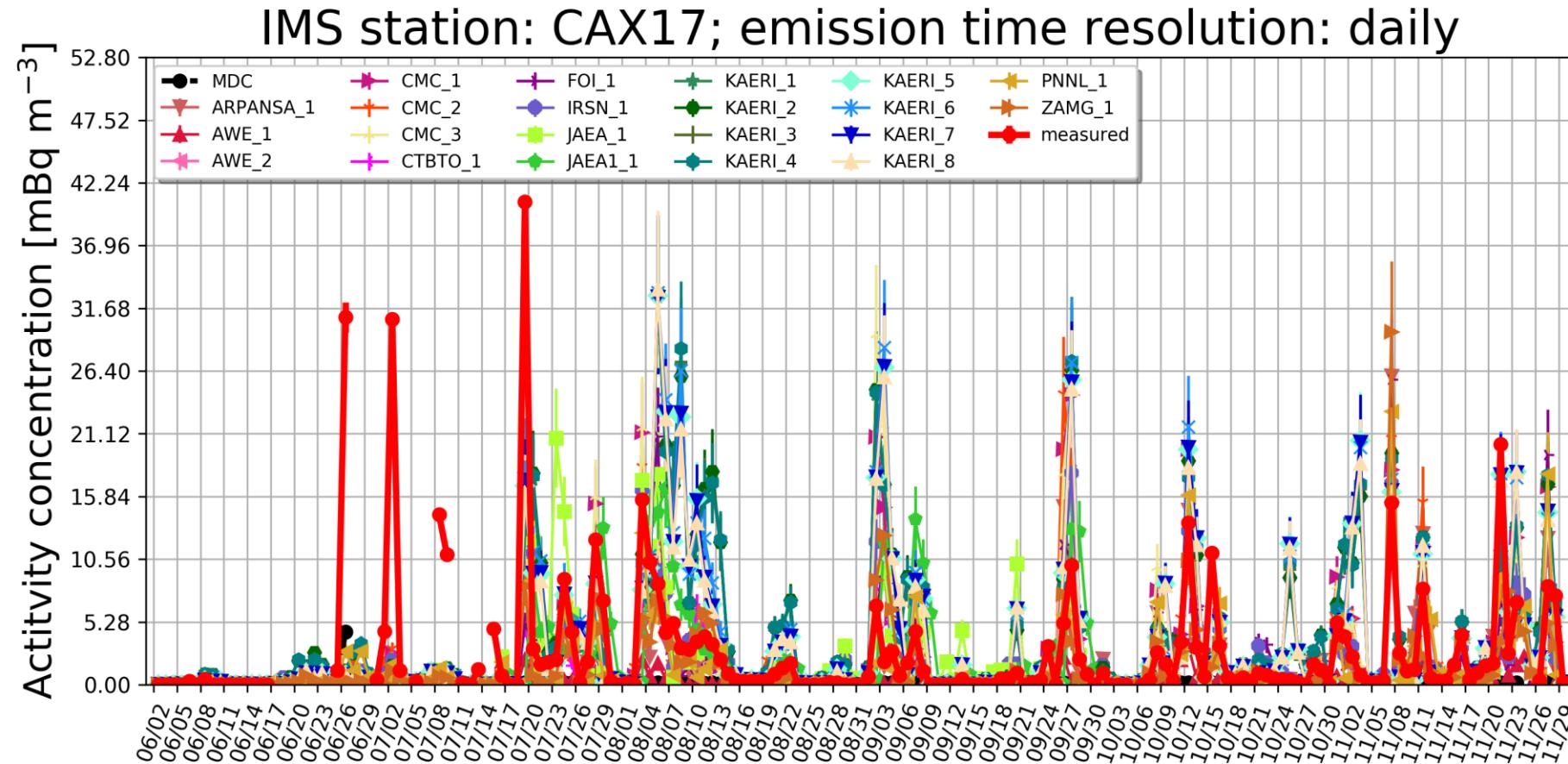
Name	Institution	ATM	Meteorology	Submissions received
Kihyun Park (Korea)	KAERI	LADAS	UM-GDAPS (KMA)	Yes
Arnaud Querel (France)	IRSN	IdX-C3X (Eulerian)	ARPEGE (Météo France)	Yes
Akiko Furuno (Japan)	JAEA	WSPEEDI-II (WRF+GEARN)	GPV- Global (JMA)	Yes
Alain Malo (Canada)	CMC	MLDP	GDPS (CMC)	Yes
Donald Lucas (USA)	LLNL	LODI	NCEP-GFS/ADAPT	Yes
Paul Eslinger (USA)	PNNL	HYSPLIT	NCEP-GDAS	Yes
Yuichi Kijima (Japan)	JAEA	HYSPLIT	NCEP-GDAS	Yes
Rich Britton (UK)	UK-NDC/AWE	HYSPLIT	NCEP-GDAS	Yes
Ole Ross (Germany)	BGR	HYSPLIT	ERA5	No
Blake Orr (Australia)	ARPANSA	HYSPLIT	ACCESS-G (BoM)	Yes
Alice Crawford (USA)	NOAA-ARL	HYSPLIT (-GEM)	NCEP-GDAS & ERA5	No
Anders Axelsson (Sweden)	FOI	HYSPLIT	NCEP-GDAS	Yes
Jolanta Kusmierczyk-Michulec (CTBTO)	CTBTO/IDC	FLEXPART 9.3.2	ECMWF-IFS	No
Christian Maurer (Austria)	ZAMG	FLEXPART 10.3	ECMWF-IFS	Yes
Michael Schoeppner (CTBTO)	CTBTO/OSI	FLEXPART 9.3.2	ECMWF-IFS	Yes
Philip Hayes (USA)	AFTAC	HYSPLIT	NCEP-GFS	No
Petra Seibert (Austria) & Pham Kim Long (Vietnam)	BUKU & VINATOM	FLEXPART	ECMWF-IFS & NCEP-GFS	No

2. An example: Time series for CAX17

A lot of
valuable
data for half
a year:

21 runs
included
already, ~10
more to
come until
June, 30th

Ensemble
approach
promising



3. A first glimpse on important statistics

What is the average benefit (over all four investigated stations CAX17, DEX33, SEX63, USX75 and all samples for June to November 2014 and all submitted runs) of:

- using *actual daily stack emission* versus *average literature emission* data for IRE and CNL facilities?
- including rough *estimates for NPPs' & and other facilities'* emissions?

$$\text{Rank} = R^2 + \left(1 - \frac{|FB|}{2}\right) + F5 + ACC$$

Rank	Actual daily stack emissions	Average literature emissions
NPP emissions included	2.24 [1.06,2.66]	2.32 [1.18,2.72]
NPP emissions not included	1.82 [0.90,2.40]	1.98 [1.05,2.54]

Answers:

- No average benefit from daily stack data over all samples
- Indication of a positive impact of roughly estimated emissions of NPPs and other facilities that adds up to ~10%