



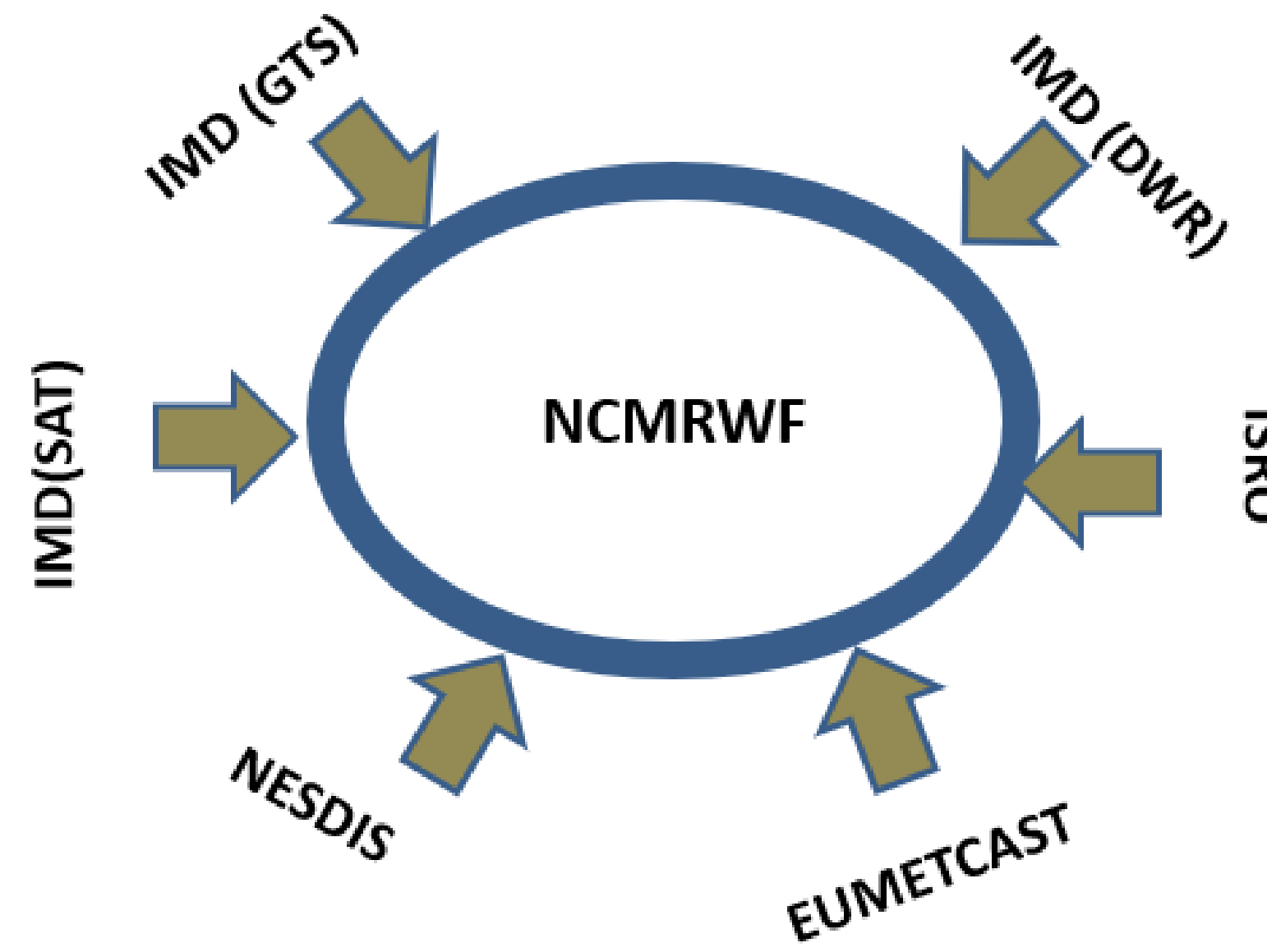
सत्यमेव जयते



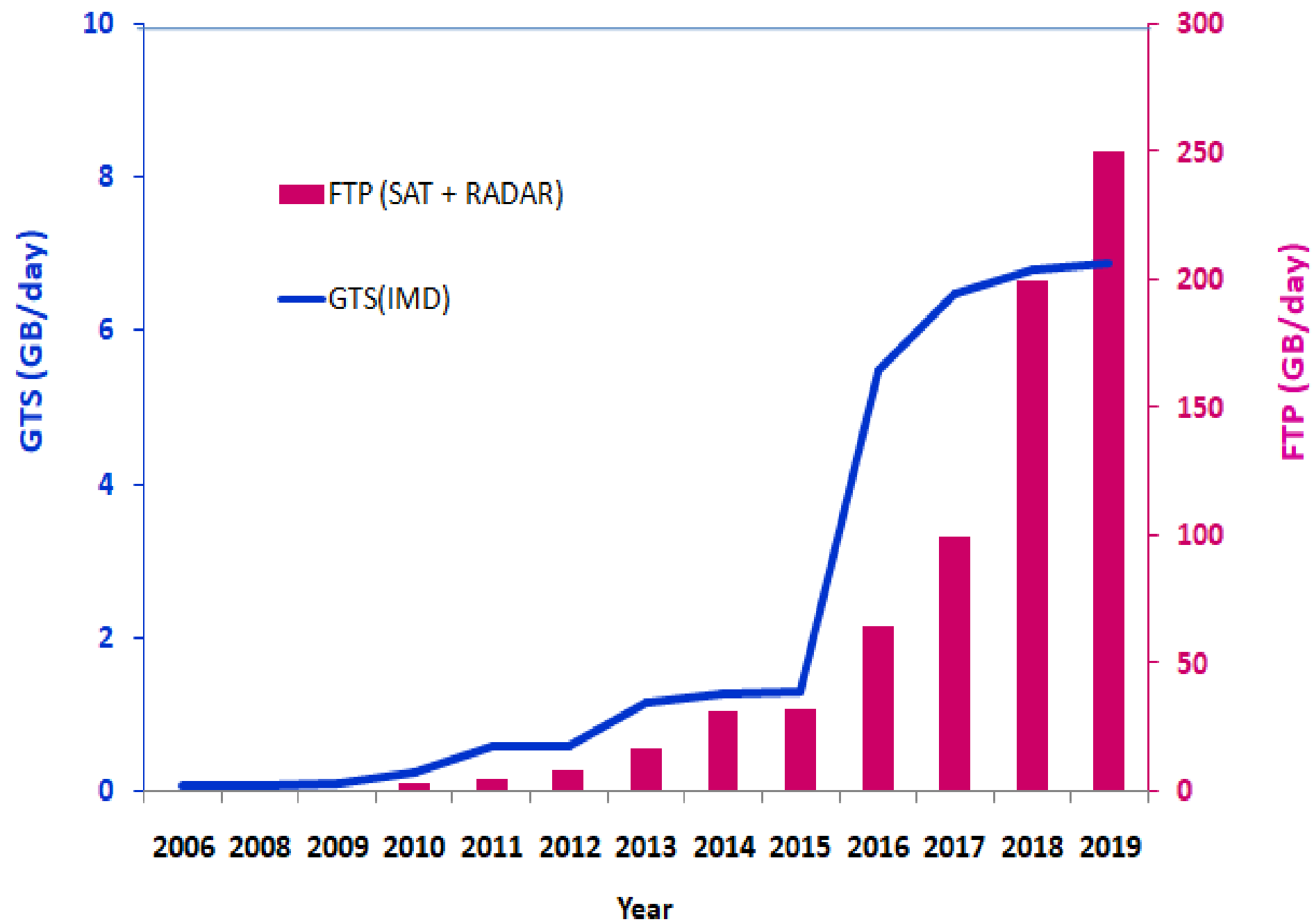
EARTH SYSTEM SCIENCE ORGANISATION/ पृथ्वी प्रणाली विज्ञान संगठन
MINISTRY OF EARTH SCIENCES/ पृथ्वी विज्ञान मंत्रालय
NATIONAL CENTRE FOR MEDIUM RANGE WEATHER FORECASTING/ राष्ट्रीय मध्यमअवधि मौसम पूर्वानुमान केंद्र

NCMRWF NWP Status

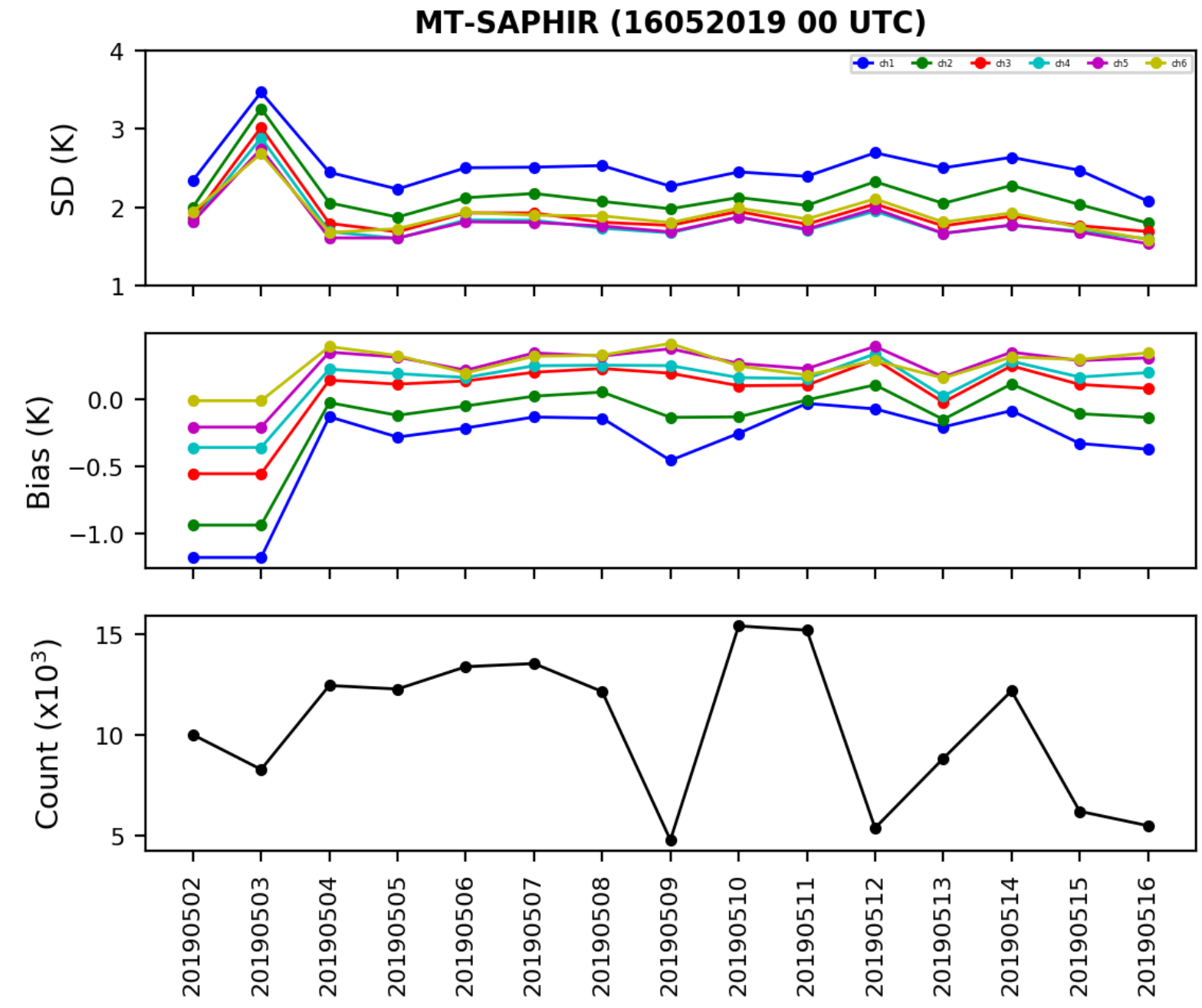
Meteorological Data Reception



Improvement in Data Reception

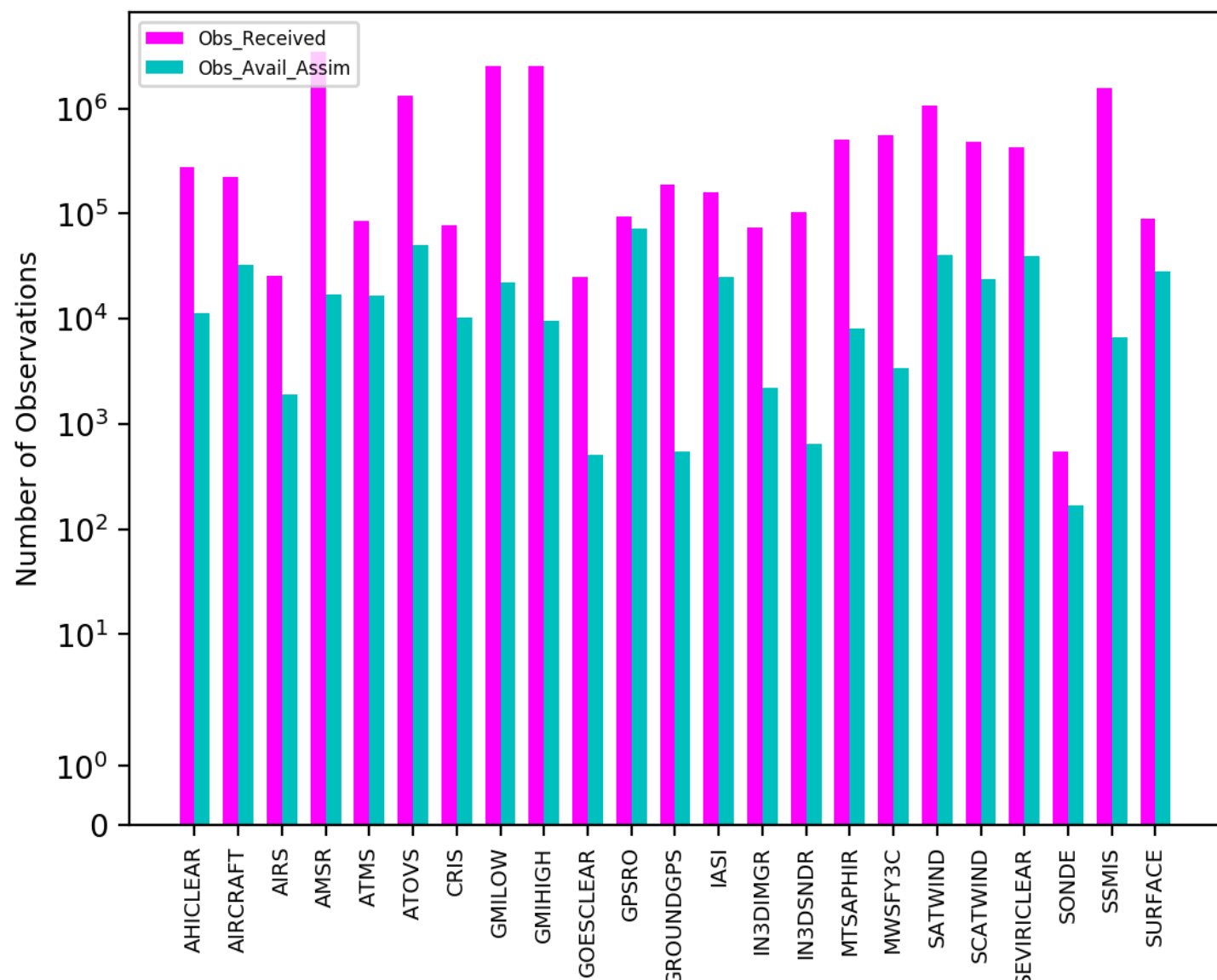


Data Monitoring



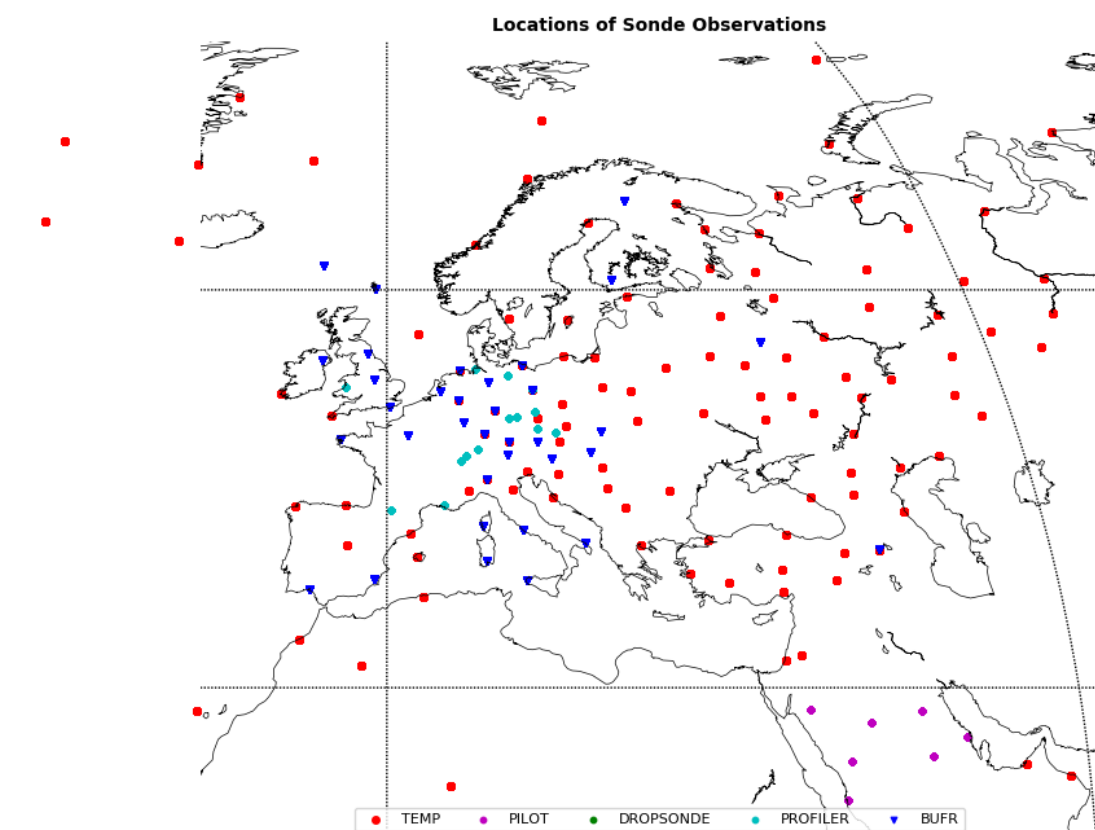
Currently assimilated observations

Conventional Observations	Satellite Observations					
	Satellite Winds (AMV)		Scatterometer winds		Satellite radiances	
	GEO	LEO				
Surface: Land SYNOP, Ship, BUOY, TC BOGUS	1. INSAT-3D	1. NOAA-15	1. ASCAT (MetOp-A)	1. LRSAT-3D Scanner	1. JASI (MetOp-A)	1. AMSU-A (MetOp-A)
	2. Meteosat-8	2. NOAA-18	2. ASCAT (MetOp-B)	2. SEVIRI (Meteosat-8)	2. JASI (MetOp-B)	2. AMSU-A (MetOp-B)
	3. Meteosat-11	3. NOAA-19	3. Scatterat	3. SEVIRI (Meteosat-11)	3. AIRS (AQUA)	3. AMSU-A (NOAA-18)
	4. HIMAWARI-8	4. MetOp-A	4. WindSat (CofC)	4. GOES Imager (GOES-15)	4. CrIS (SNPP)	4. AMSU-A (NOAA-19)
	5. GOES-16	5. MetOp-B		5. AHI (HIMAWARI-8)		5. Tansat-X
	6. GOES-17	6. AQUA		6. JRSAT-3D Imager		6. Tansat-X
	7. TERRA	7. TERRA				7. FY-3C
	8. SNPP	8. SNPP				9. MT-SAPHIR
SONDE: PILOT, TEMP, Wind Profiles, DropSonde, Radar VAD winds						10. ATMS (SNPP)
						11. SSMIS (DMSP-F17)
						12. AMSR 2 (GCOM-W1)
						13. MWHS (FY3C)
Aircraft: AMDAR, AIREP						14. GMI (GPM)

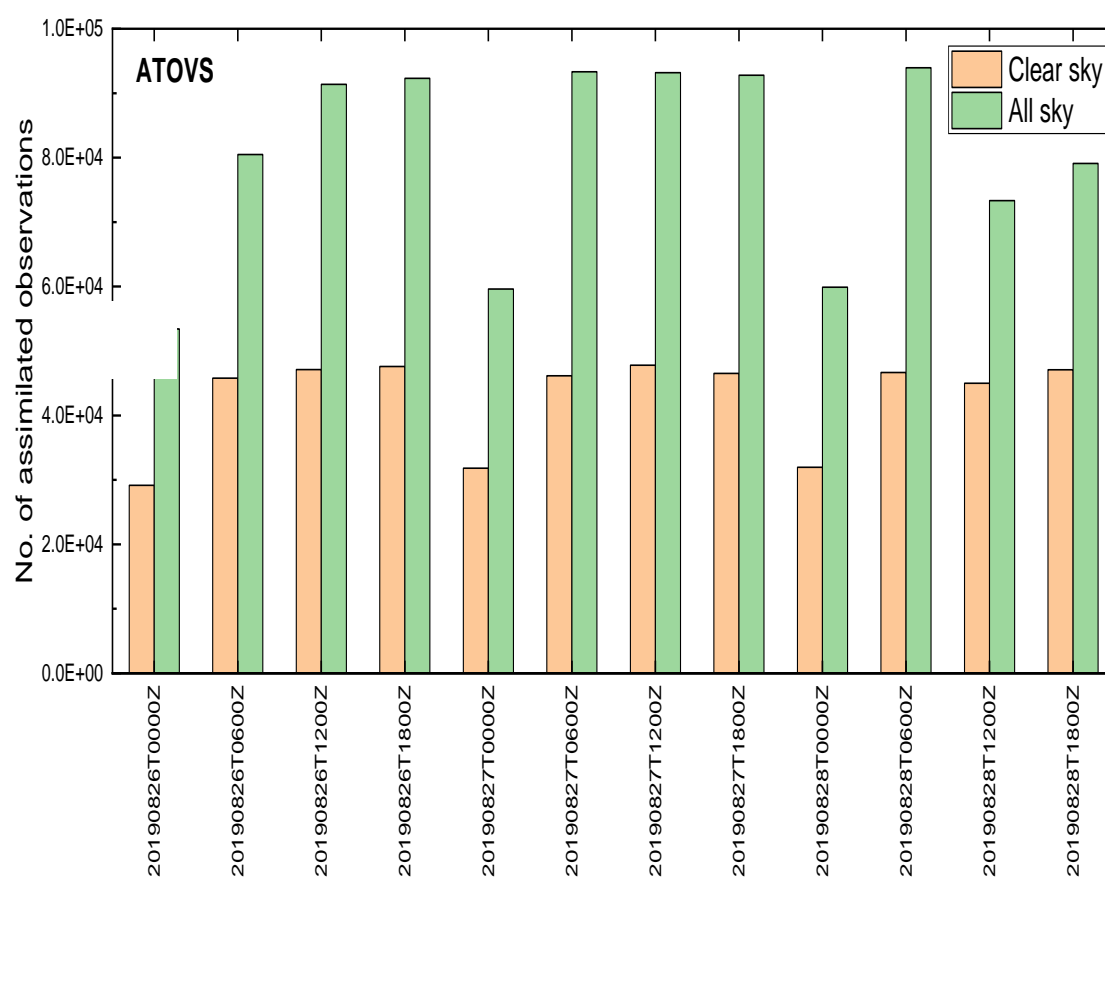


New Observations

Sonde BUFR



AMSU-A all sky radiances



New Observations Assimilated - Operational

AMVs from GOES-16, GOES-17 and NOAA-20; Radiance from NOAA-19 and FY-3C, BUFR surface & sonde observations

New Observations Assimilated - Experiment

AMVs from GK-2A, FY-2G, FY-2H; Scattrometer winds from HY-2A; NOAA-20 radiance (ATMS & CrIS); All sky radiance from all AMSU-A

Global Data Assimilation and Forecast System

Model	Assimilation Technique	Model Resolution	Assimilation Cycles	Forecast Frequency	Forecast Length
NCMRWF Unified Model (NCUM)	Hybrid-4DVAR	12 km (horizontal) 70 levels (up to 80 km vertical)	Four (00,06,12,18) with update run for 00	Two 00 12	10 days 5 days
NCMRWF Global Forecast System (NGFS)	4DEnsVAR Hybrid	T1534L64	Four (00,06,12,18) Update run for 00 and 12	Four 00 06 12 18	10days

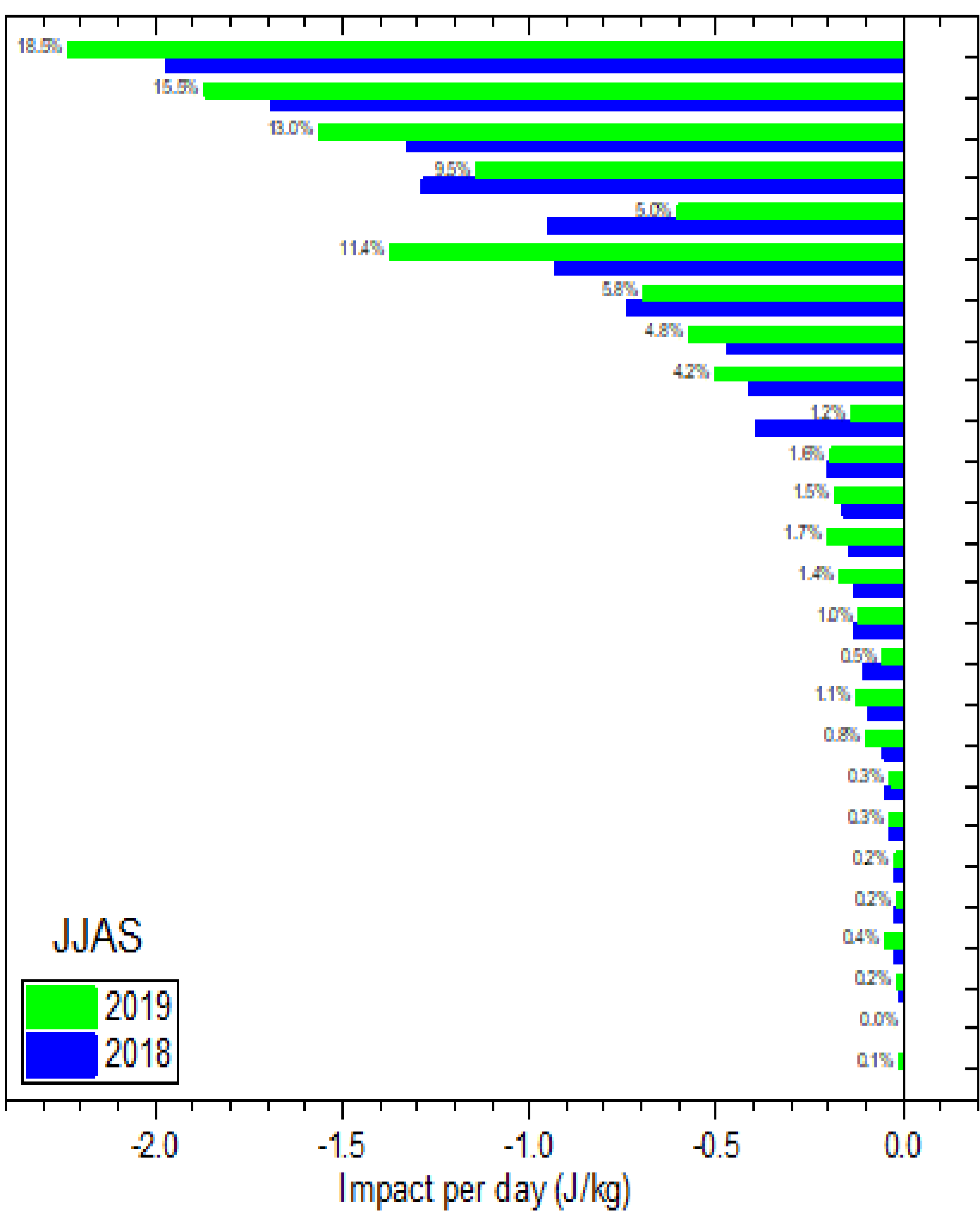
Global Ensemble System

Model	Ensemble members	Model Resolution	Perturbation Generation method	Assimilation Cycles	Forecast Frequency	Forecast Length
NCMRWF Ensemble Prediction System (NEPS)	22 + control	12 km (Ohorizontal) 70 levels (up to 80 km vertical)	Ensemble Transform Kalman Filter	Four (00,06,12,18)	One Based on 00 (predictions based on 11 perturbed members from previous day 12UTC run and 11 members from current day 00UTC run)	10 days

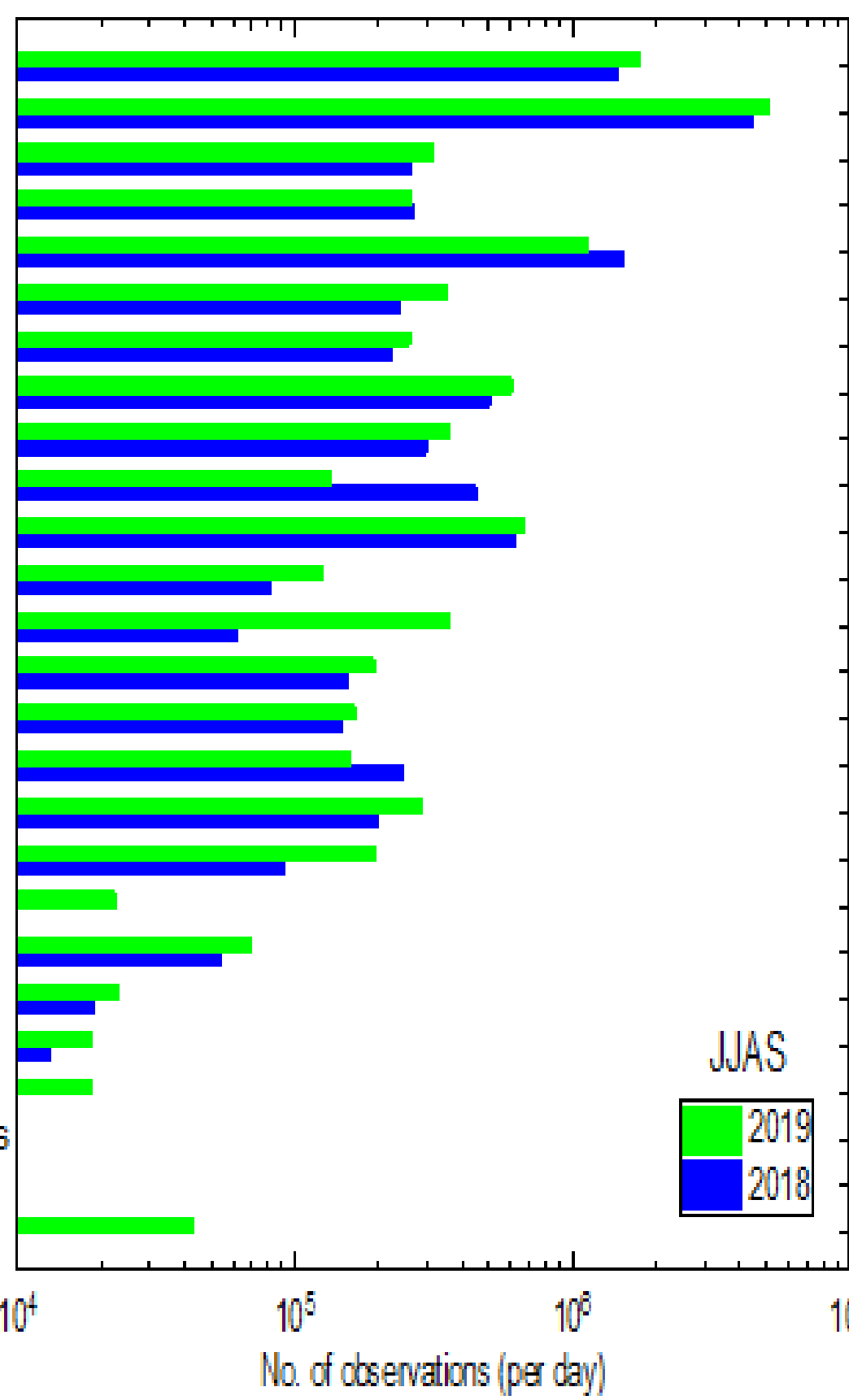
Forecast Sensitivity to Observations (FSO)

Impact of Observations on 24 hr Forecast of Global NCUM: Comparison for SW Monsoon 2018 & 2019

Impact of Observations



Number of Observations Assimilated



Comparison of Impact of Observation on forecast over Four Regions June-July-Aug, 2019

