



British  
Geological Survey  
NATURAL ENVIRONMENT RESEARCH COUNCIL

Gateway to the Earth

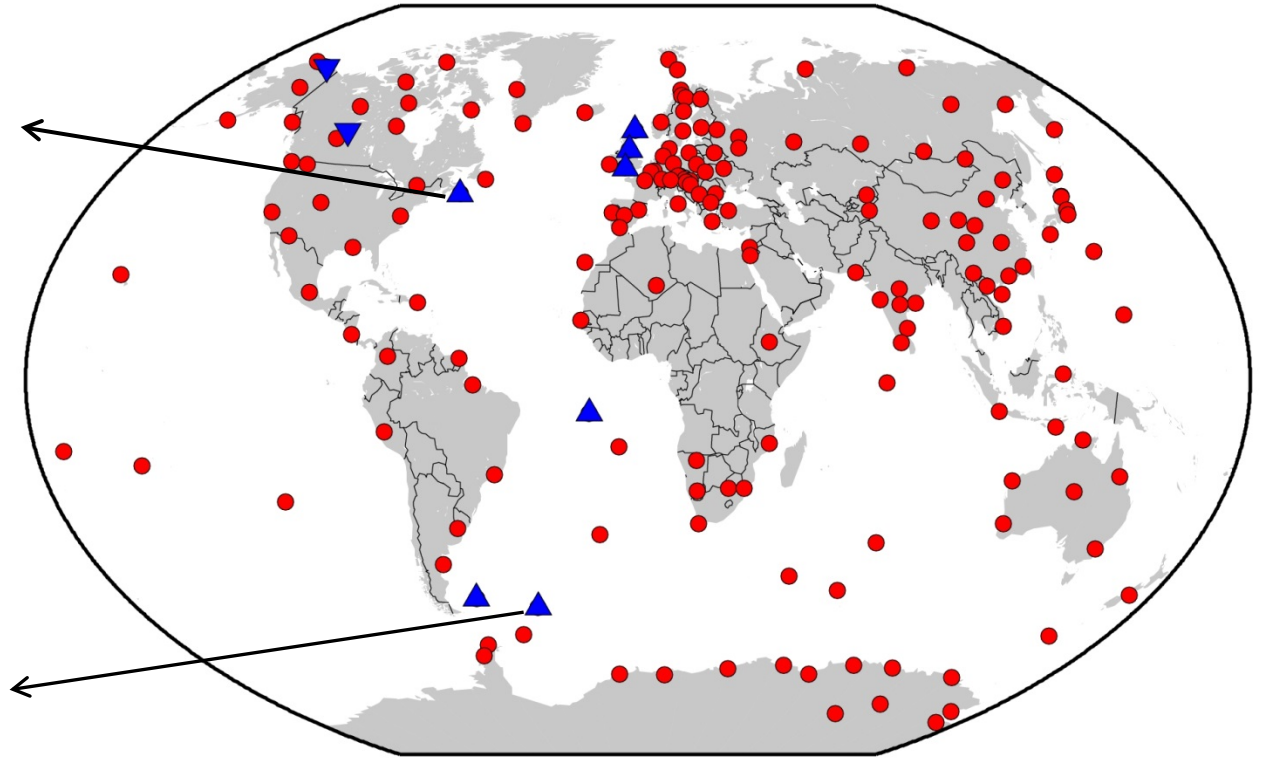
# **New BGS IMO Increasing the global coverage of high standard magnetic observatories**

Orsi Baillie, Sarah Reay, Ellen Clarke, Christopher Turbitt and Anthony Swan

British Geological Survey, Edinburgh, UK

IUGG2015 Prague  
23<sup>rd</sup> June 2015  
Session: A39

# Global coverage of observatories



# Observatory instruments

- GDAS system: DTU Fluxgate Magnetometer, GSM90 Proton Precession Magnetometer, Logging PC
- Absolute D/I fluxgate theodolite
- GSM90 PPM



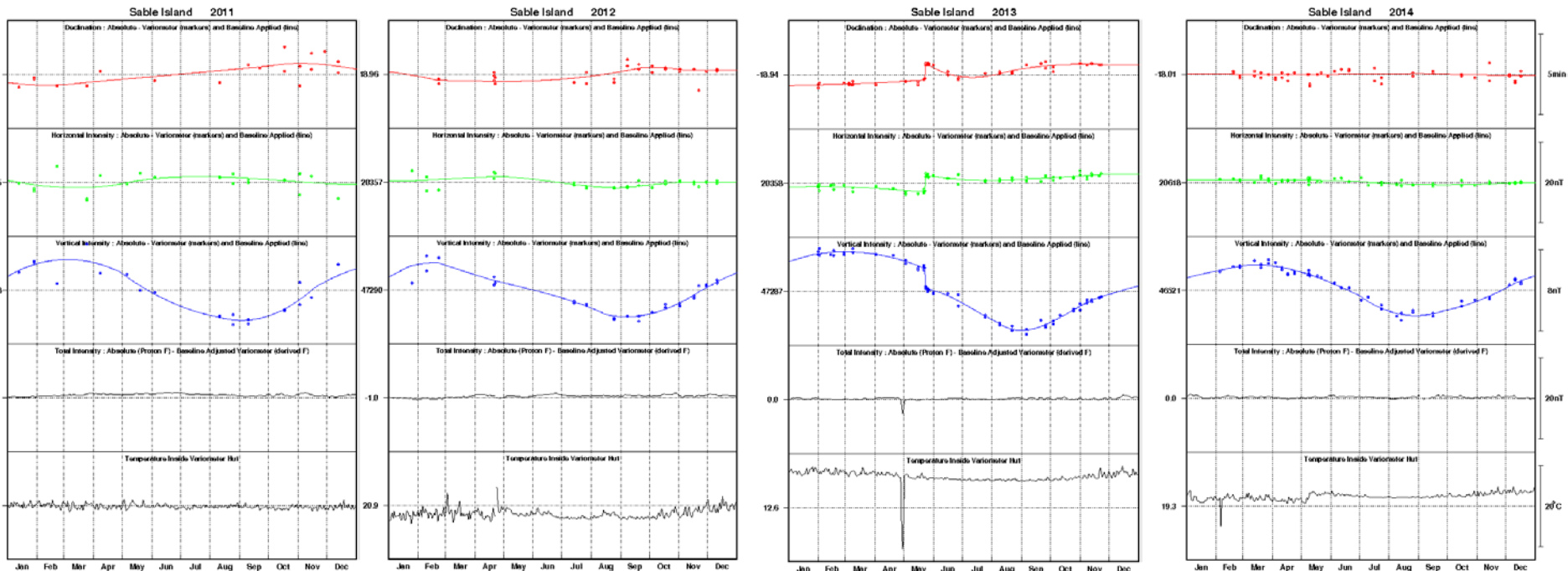
# Data Processing

- Communications / real-time data retrieval to Edinburgh via network link
- Daily (variometer-, preliminary- and QD-data)
- Absolute observations made every two weeks
- Monthly (regular baseline updates, provisional results published in monthly bulletins)
- Yearly (final baseline revision and QC-checks)

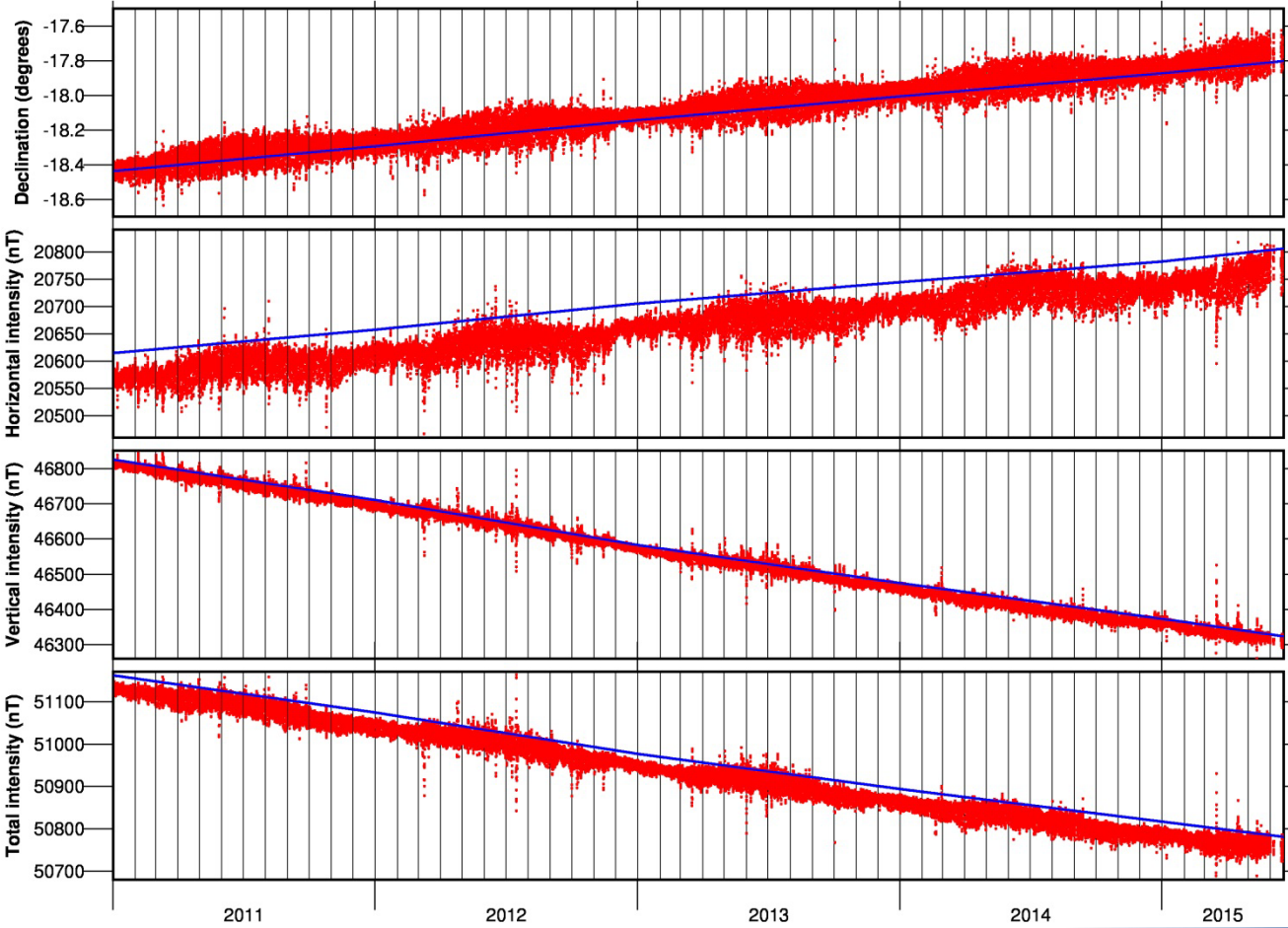
[More on BGS data processing this afternoon: see Reay et. al. in session A39, at 14:15]

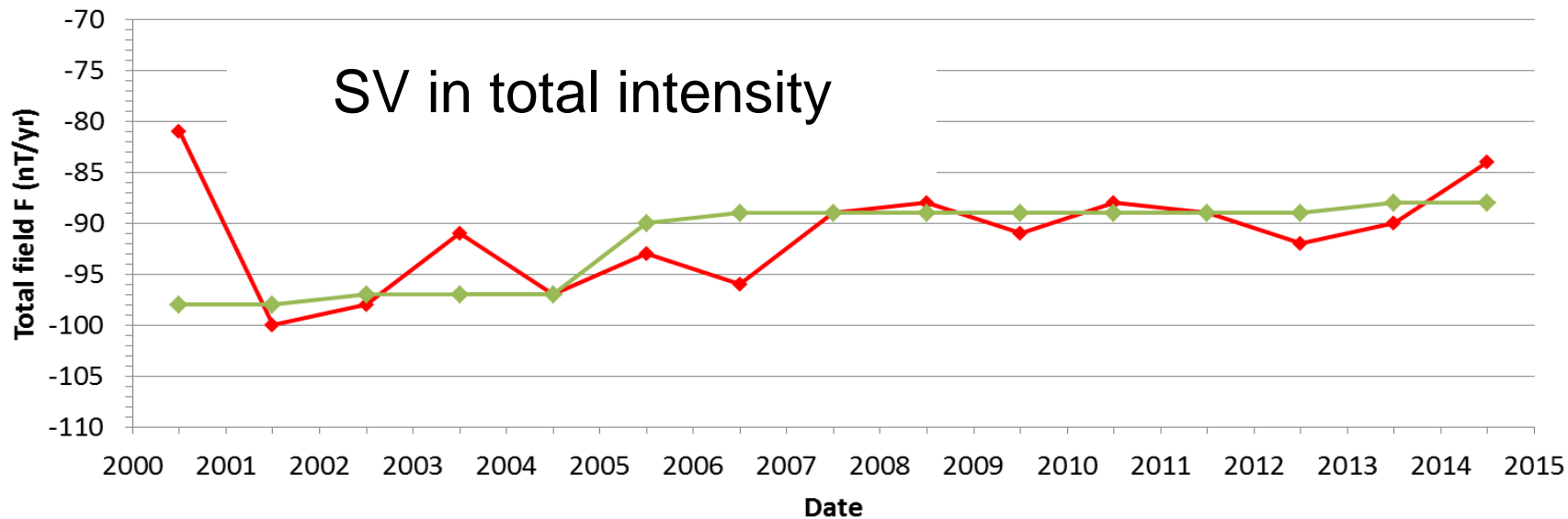
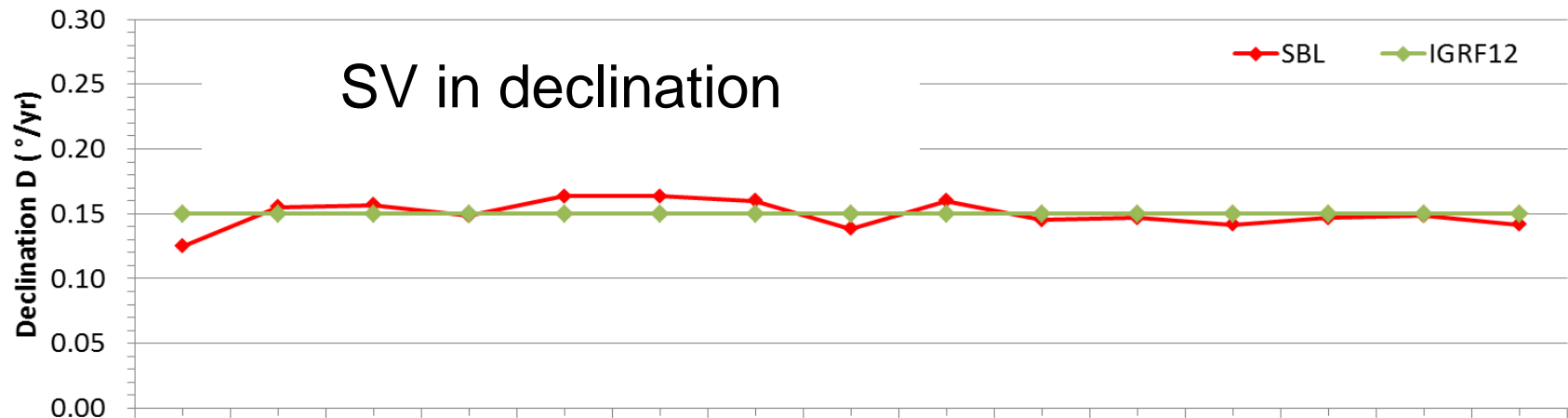


# SBL baseline over a number of years



# Observed (hourly means) & modelled (BGS 2015) magnetic field at SBL





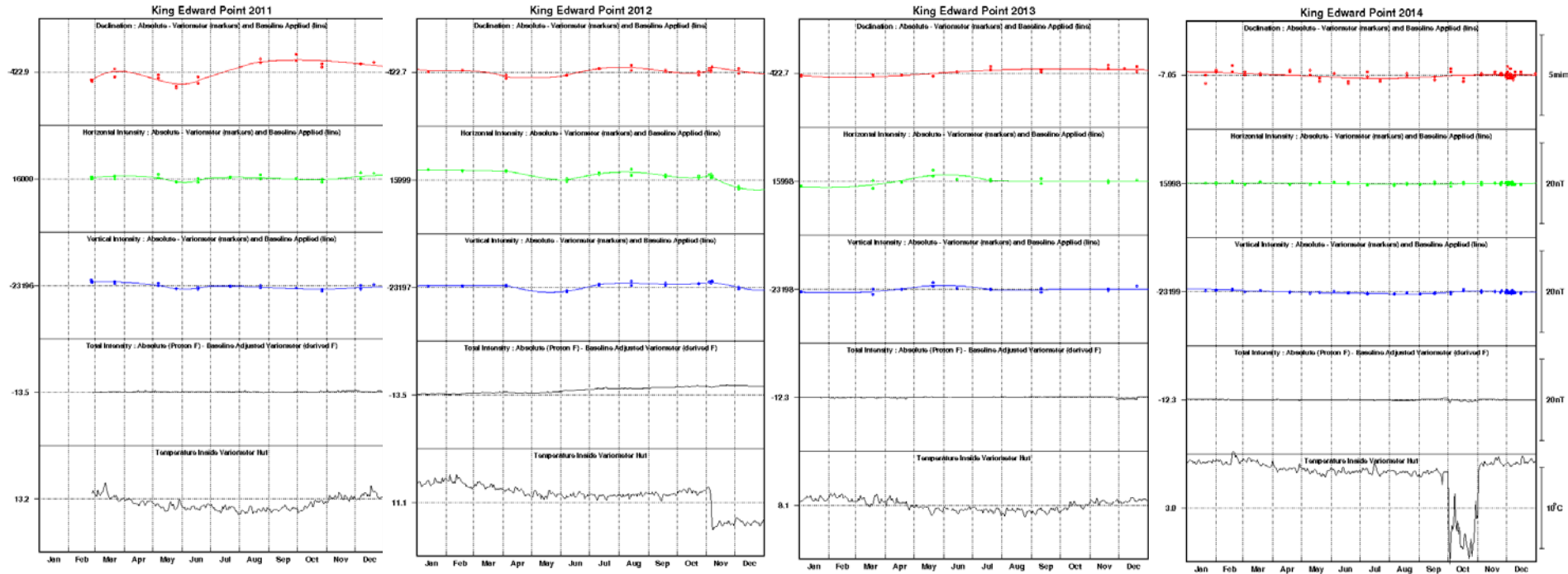




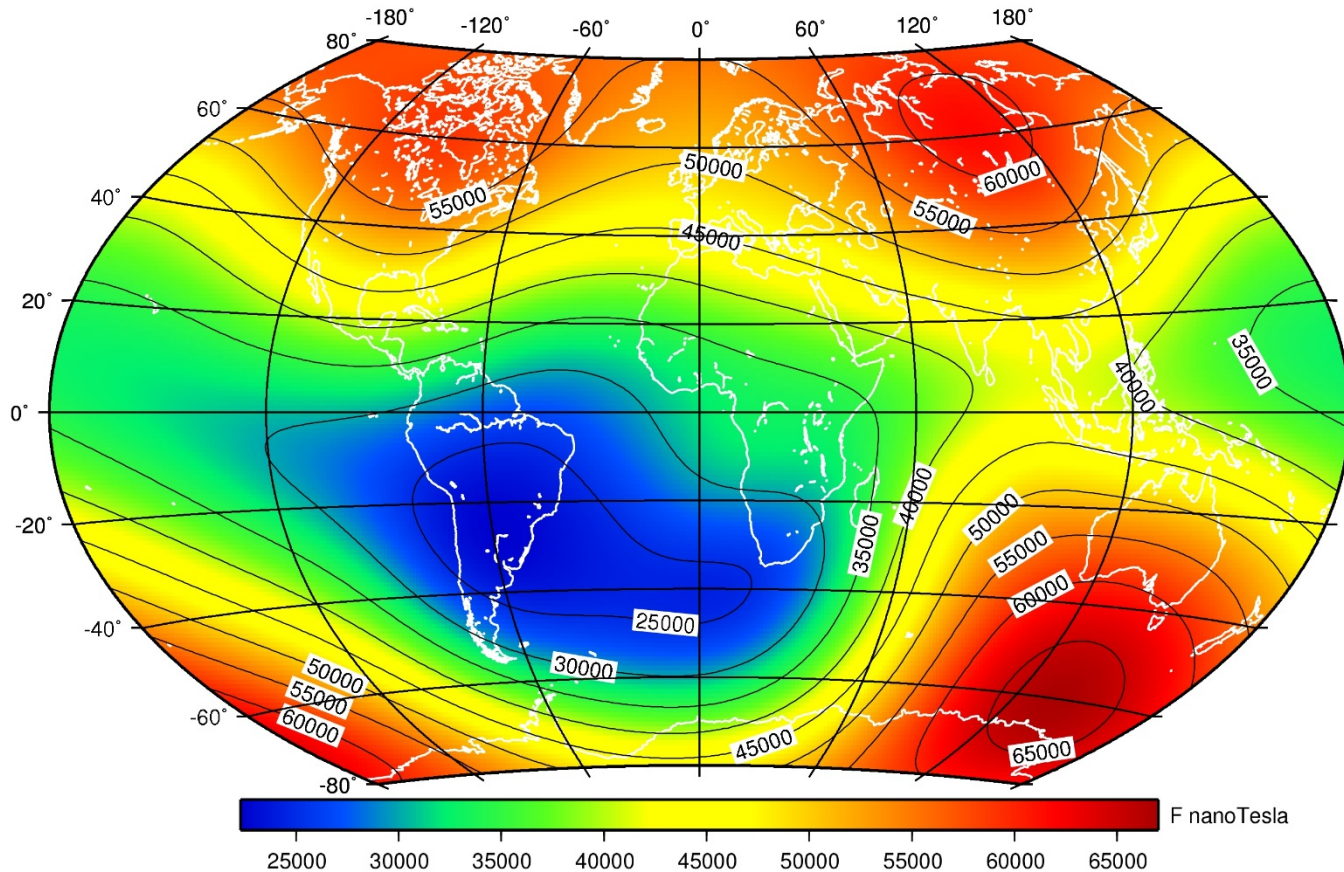
# King Edward Point Observatory (KEP) 2011- present



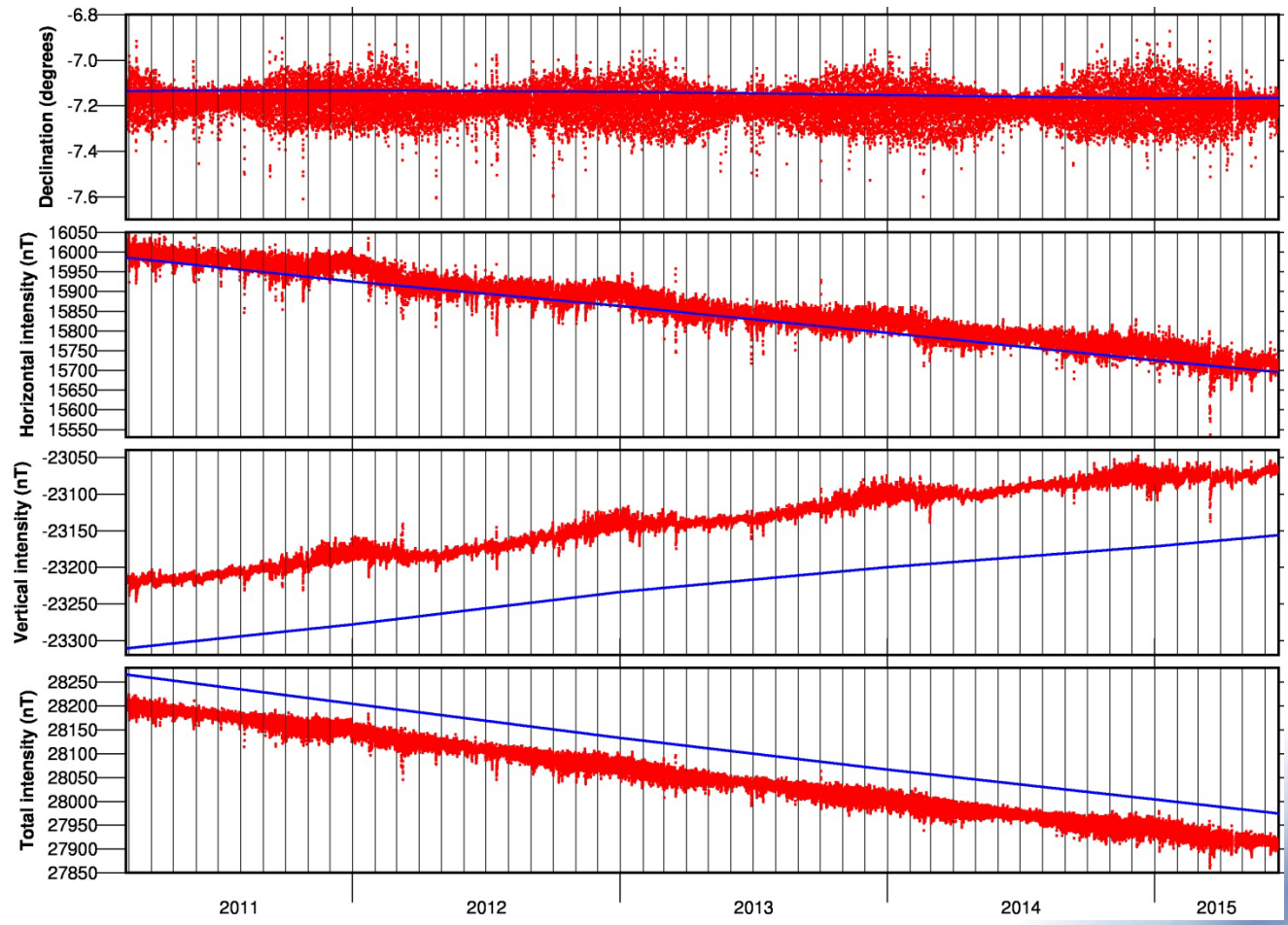
# KEP baseline since the observatory opened



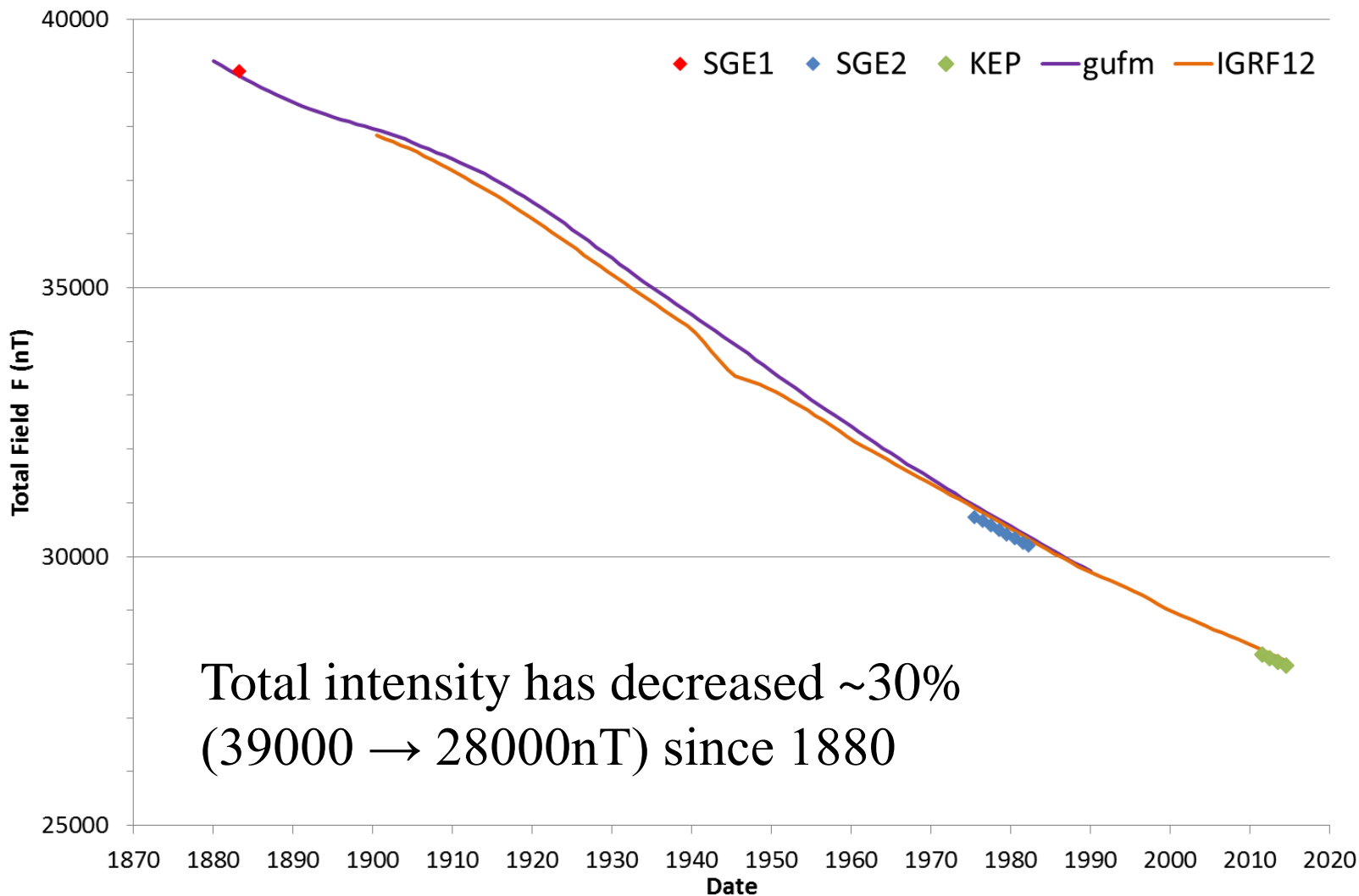
# South Atlantic Anomaly (SAA)



# Observed (hourly means) & modelled (BGS 2015) magnetic field at KEP

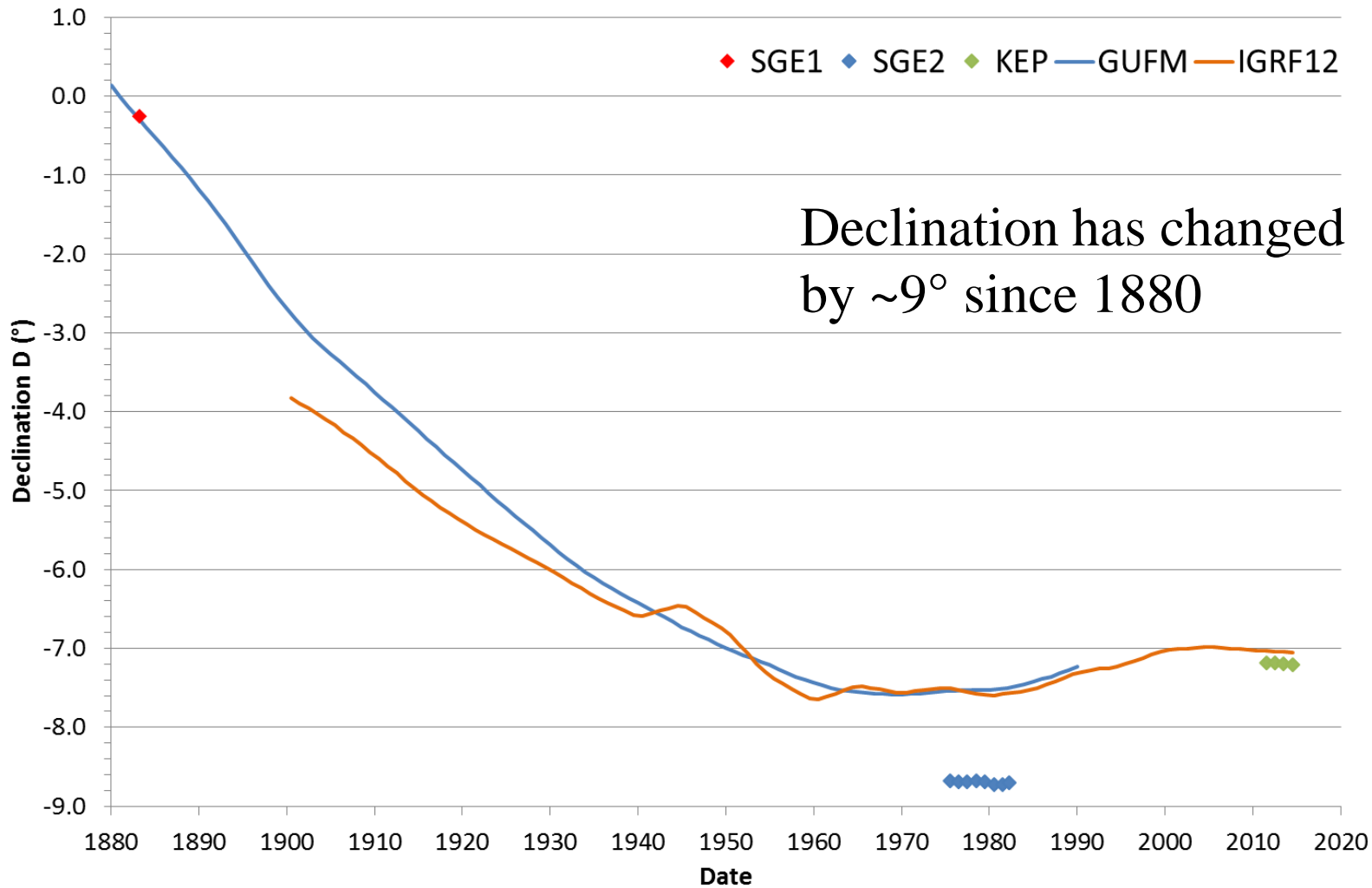


# South Georgia

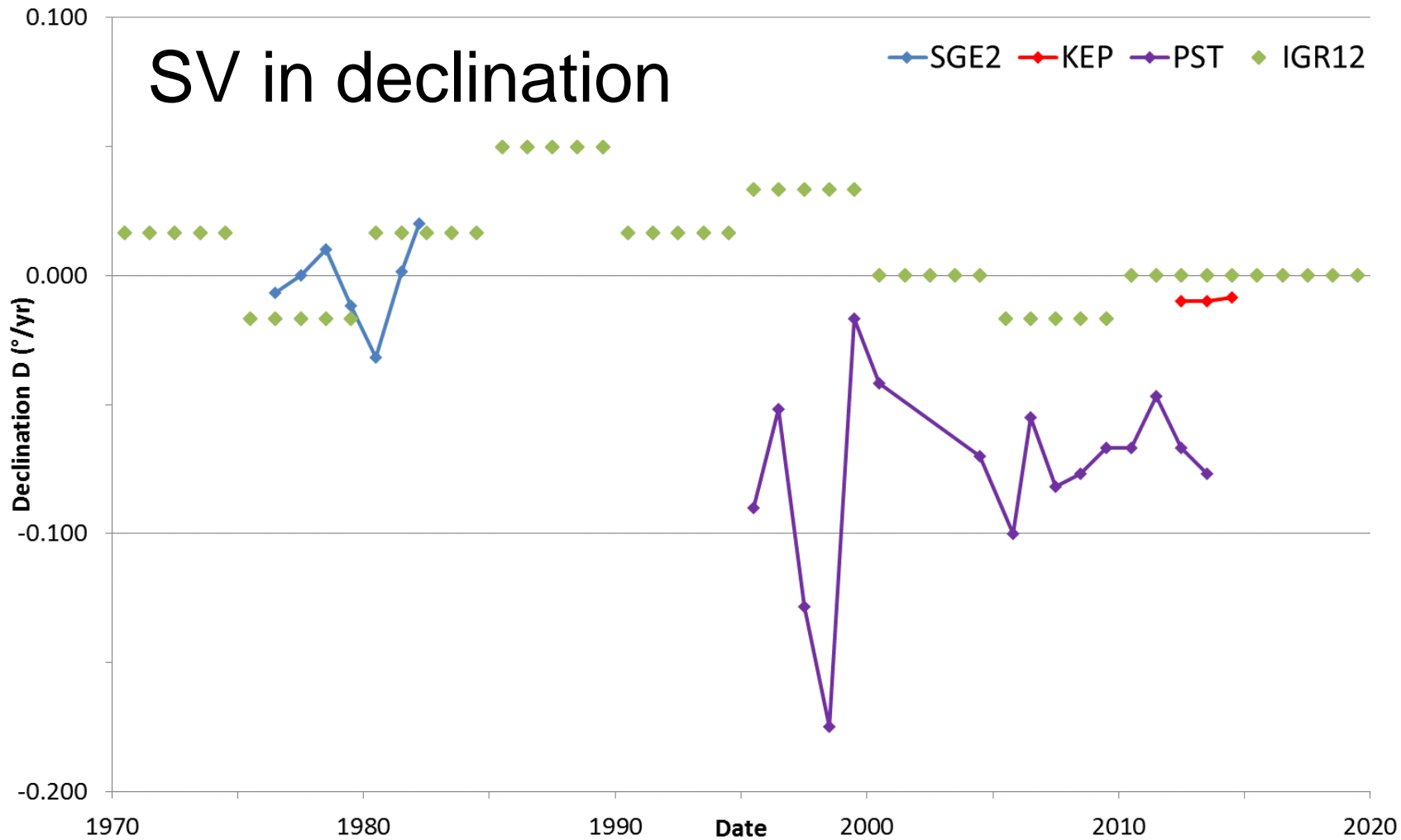


Total intensity has decreased ~30%  
(39000 → 28000nT) since 1880

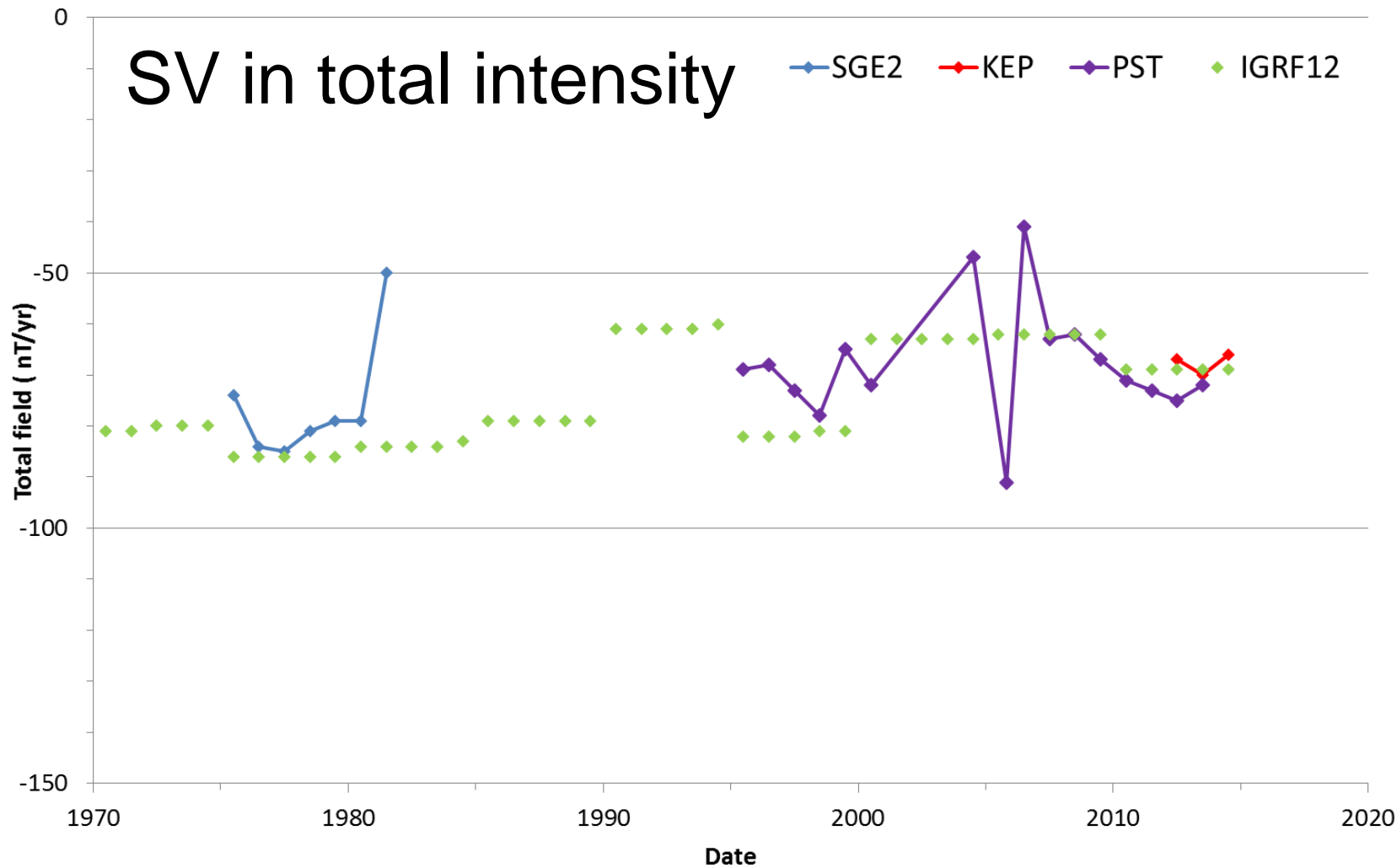
# South Georgia



# SV in declination



# SV in total intensity





# Summary & future activities

- IMO status awarded in October 2014
- QD- data produced and delivered on a next day basis
- Continue close monitoring of baseline stability
- > 4 years of KEP and > 14 years of SBL data are available for scientific research
- SBL already used by David Boteler for GIC studies
- Geomagnetic activity index production
- Study geomagnetic pulsations