Upper-air observations

-

Per Dahlgren

Data availability

Recovered upper-air data archived at ECMWF (in MARS)

	Expid	class	stream	obsgroup
NCAR upper-air archive	1759	e2	da	conv
NCAR CHUAN holding	1761	e2	da	conv
CHUAN ERACLIM extension	1770	e2	da	conv
CHUAN 2.0	*2491*	*e2*	*da*	*conv*

Data retrieved at ECMWF

Contents converted into ODB2 format, tools from Hans Hersbach

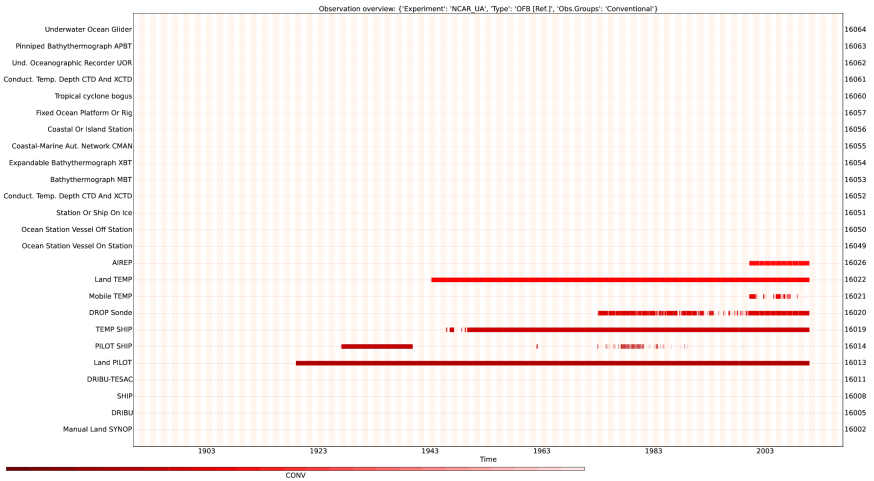
ODB2 data archived in MARS

Data availability

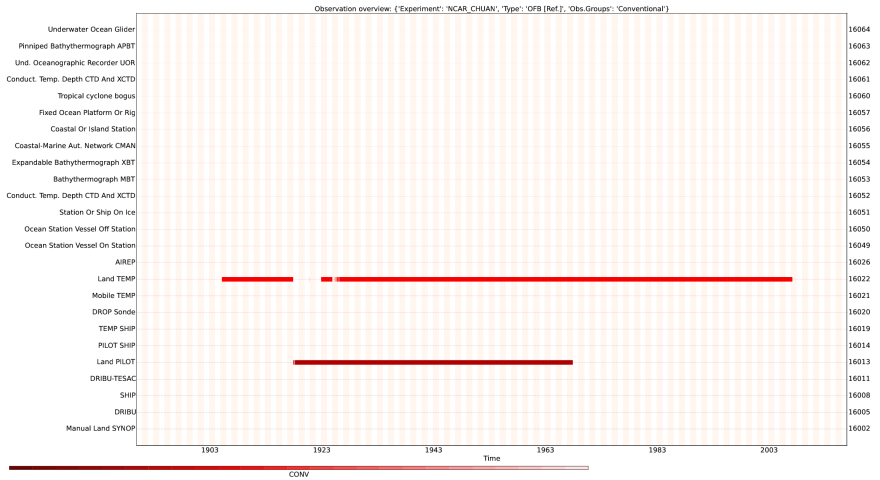
Recovered upper-air data archived at ECMWF (in MARS)

	Expid	class	stream	obsgroup
NCAR upper-air archive	1759	e2	da	conv
NCAR CHUAN holding	1761	e2	da	conv
CHUAN ERACLIM extension	1770	e2	da	conv
CHUAN 2.0	*2491*	*e2*	*da*	*conv*

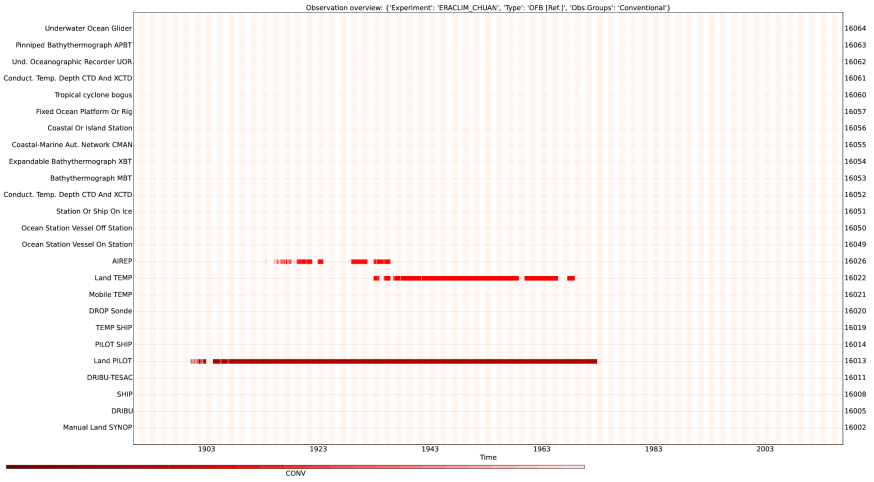
1759



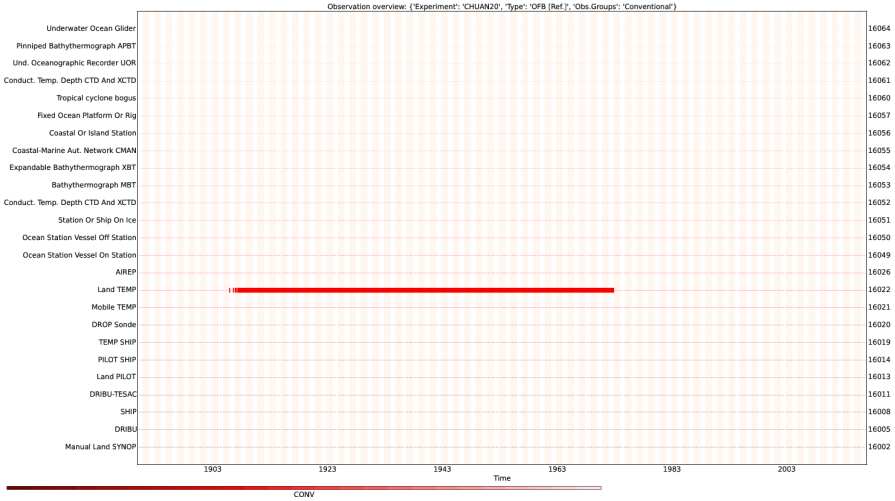
1761



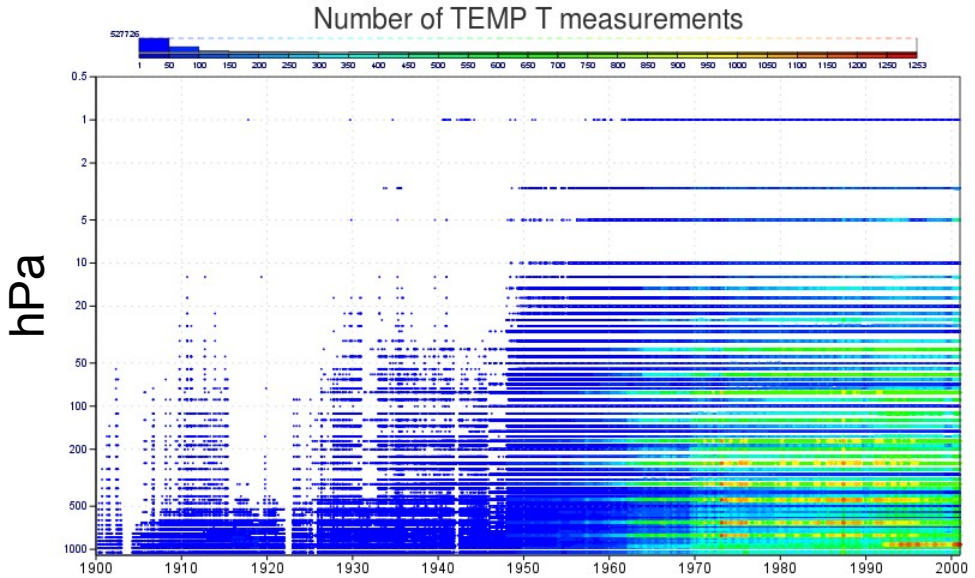
1770

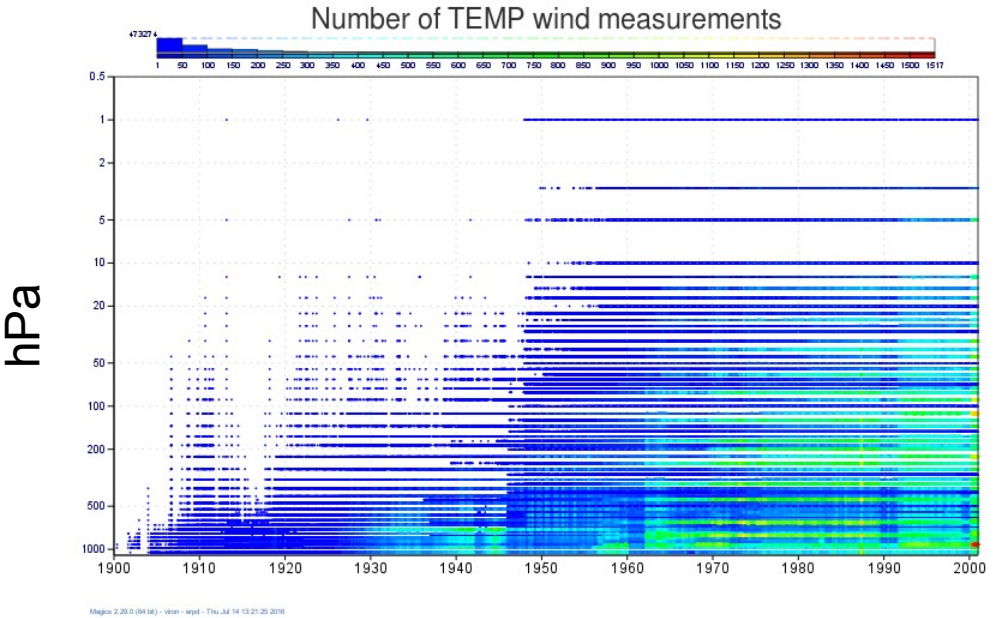


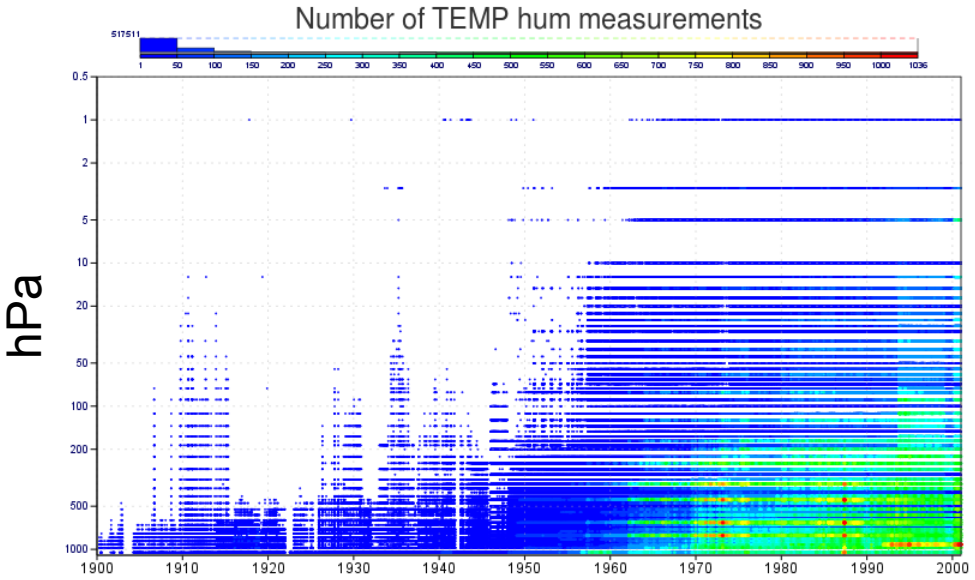
2440



Data availability







Available upper-data, all sources combined
duplicates removed (!)

Using special data sets in IFS

Surface data

ISPD22	1607	e2	da	conv
ISPD326	1722	e2	da	conv
ICOADS25	1608	e2	da	conv

Upper-air data

ncar_ua	1759	e2	da	conv
ncar_chuan	1761	e2	da	conv
eraclim_chuan	1770	e2	da	conv
Chuan20	2491	e2	da	conv

Special data sets archived in MARS
In ***ODB2*** format

- The structure of IFS is undergoing major restructuring (OOPS,COPE)
- The way special data sets has been read into the assimilation (CERA-20C/ERA-PreSAT) can not be done in CERA-SAT or ERA5
  ==> data has to be read via **COPE**

COPE=Continuous Observation Processing Environment

Using special data sets in IFS

- Circumventing COPE with “quick fixes” to get the data into assimilation is a bad idea
- COPE involves major restructuring of the data flow of observations, e.g.:
  - Where in the processing chain observation errors are assigned
- Reading the special data sets through COPE ensures solutions that will be sustainable and more easily utilised in reanalysis systems based on new IFS versions (CERA-SAT/ERA5)

Using special data sets in IFS

Status

- Running a CERA-SAT experiment in 1956
- Able to read ISPD/ICOADS (surface data)+ upper-air data into the assimilation ==> and 4D-Var minimises!
- Needs some further attention:

  - Vertical coordinate change for TEMP data on height levels
  - Make sure RAOBCORE bias corrections applied correctly
  - Run experiments with ERA40 (MARS data in BUFR) observations together with special data sets

- Scientific experimentation can hopefully begin in 1-2 months