Processing historical data

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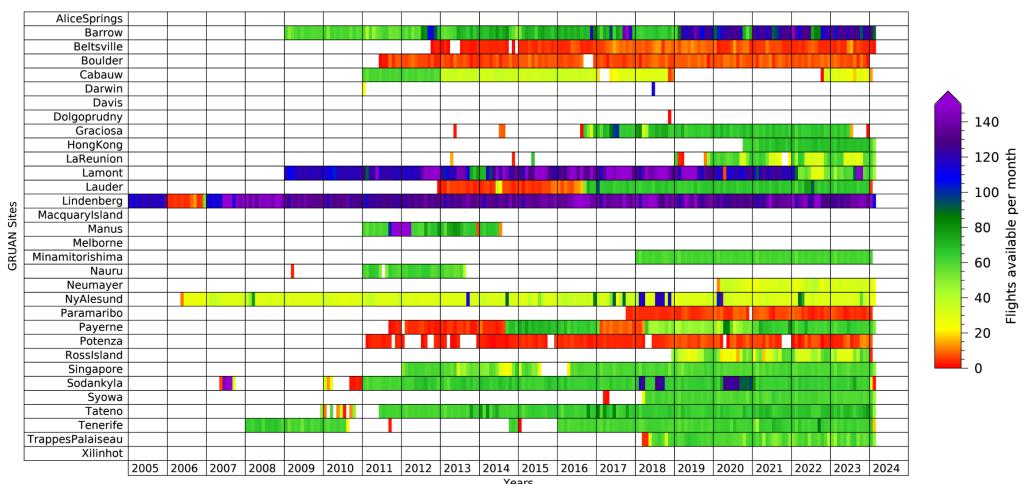**University of Salerno, Italy**

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Current GDP status for upper-air data

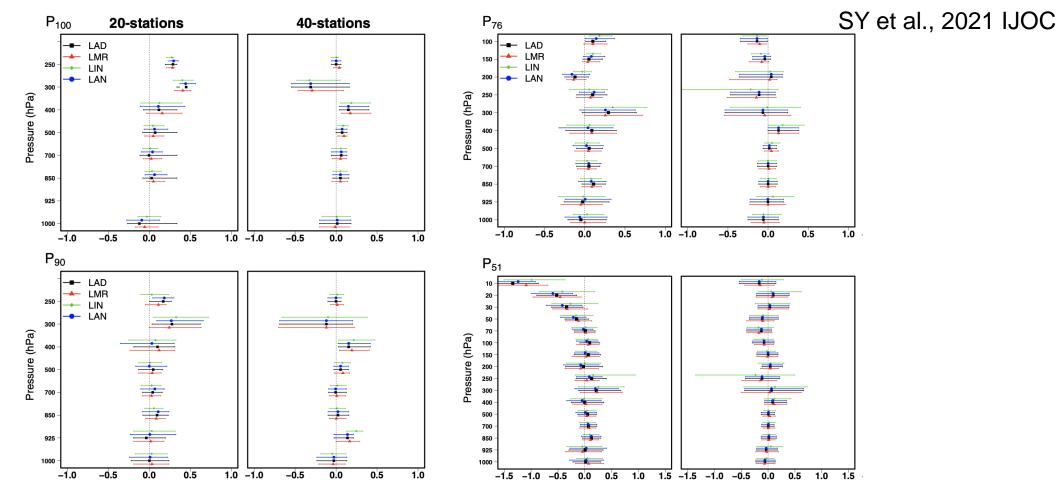

GRUAN Radiosounde Launches (total: 165945 at 2024-02-25)

Except for few stations, where long and continuous data records are available, there «young» or discontinuous data records.

GRUAN

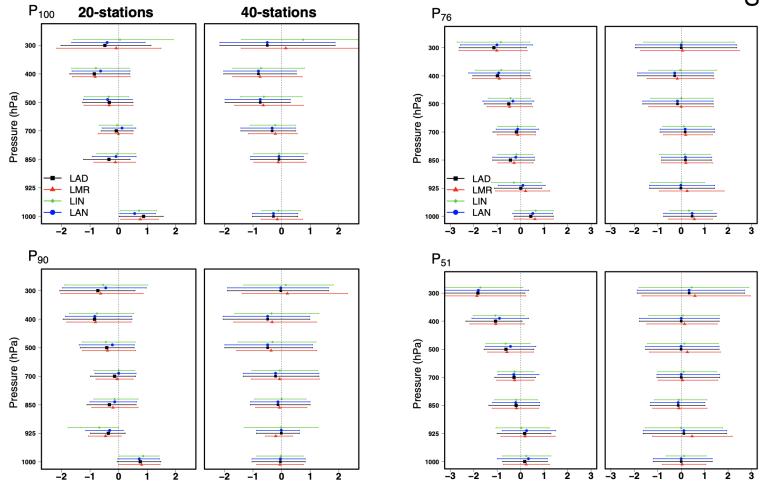# Effect of missing data or short records on the T and RH trend estimation

Comparison of T trends for different number of station in NH (20 and 40), artificially subsampled from those with 100% data coverage (2 launches per day), 90%, 76% and 51 % data coverage. Different linear regression methods are also used.

SY et al., 2021 IJOC

Same as previous slide, for RH.

	RHARM NH		CUON NH		RHARM(GRUAN)		CUON(GRUAN)	
	Mean	St. dev	Mean	St. dev	Mean	St. dev		
T trends (K/da)	-0.12	0.25	-0.01	0.13	-0.07	0.04	-0.03	0.05

- Trends estimated from GRUAN stations and all upper-air stations (>300) in the NH, using data from RHARM (Madonna et al., 2022) and CUON (Haimberger et al., 2024) homogenized datasets

- Data used since 2004

- Trends are consistent within the standard deviation

GRUAN dataset is growing and, if enriched by reprocessing past data, may already be used for trend estimation in upper-troposphere, lower stratosphere.

Sodankyla site is using, for the vast majority of soudings the autolauncher and, therefore, without the SHC in the pre-launch procedure.

Comparison the distribution of uncertaninties with another site (Ny-Alesund) launching manually, it is possible to clearly see the difference in terms of inflation of the RH uncertainty.

At present, SHC was not used for the vast majority or a substantive fraction of sounding performed also at certified sites, for example:
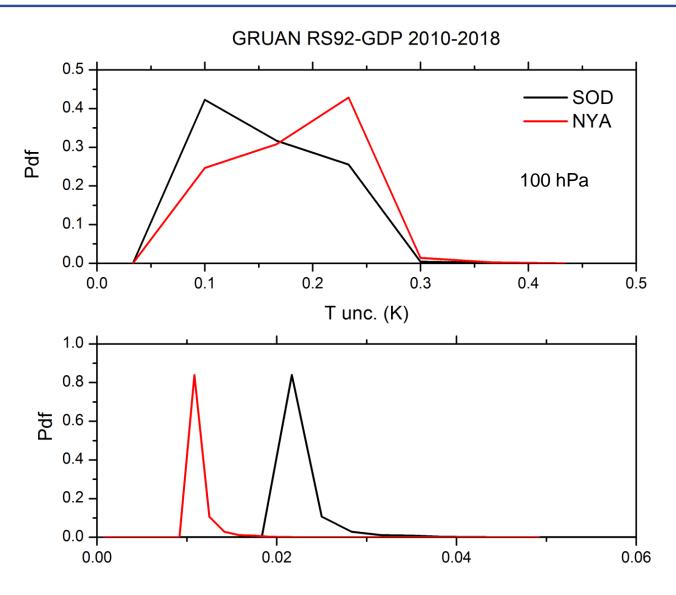ARM sites (Barrow, Lamont, Graciosa)
Payerne
Potenza
Sodankyla
Tenerife.
For short (i.e. 1 year period also at other sites).

GRUAN RS92-GDP 2010-2018

Raw data files

Metadata (all those available)

Manual submission with the RS launch client

Open questions:

• Have all the stations these information archived for the years before they entered GRUAN and for the sondes covered by the GDPs?

• Can all the stations spend the needed effort to carry on this relevant task?

• Can we agree to carry on this effort in periodical step under the coordination of TT sites and LC?

• Perhaps good to start with an inventory for all the sites.