

Meta-data in GRUAN



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→ Introduction

→ Meta-data in GRUAN

- Part 1 – GRUAN meta-data base
- Part 2 – Station & measurement systems
- Part 3 – Measurement
- Part 4 – Data & processing
- Part 5 – Dissemination

→ Conclusion

What are “meta-data”?



- Everybody has an own imagination of that
 - And all are different

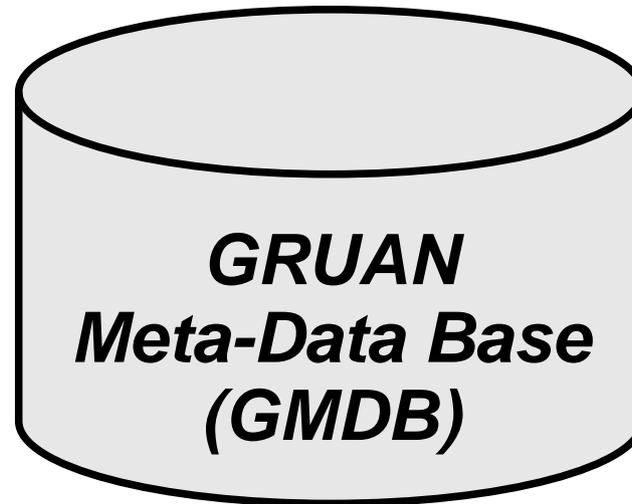
- My interpretation of “meta-data”
 - Data **about** data
 - Information about characteristics of the data
 - All information which is relevant to fully understand the data

- Important properties of meta-data
 - Automatic handling → standardisation
 - Good structured → as simple as possible but as complex as required



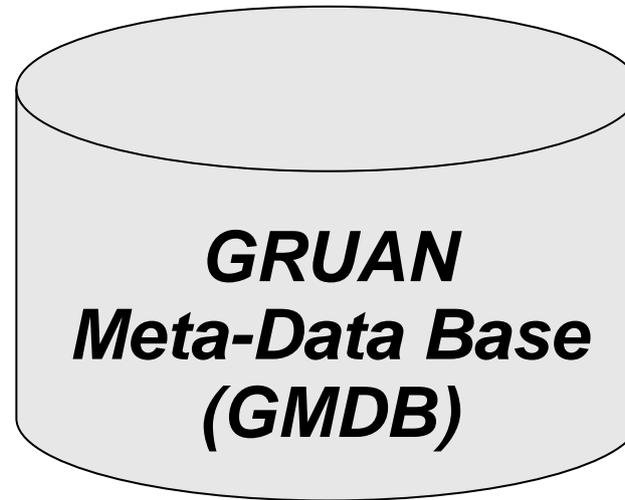
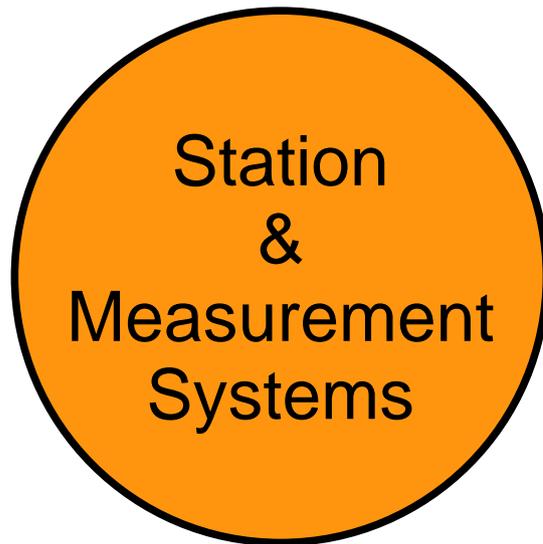
Part 1: GRUAN Meta-Data Base

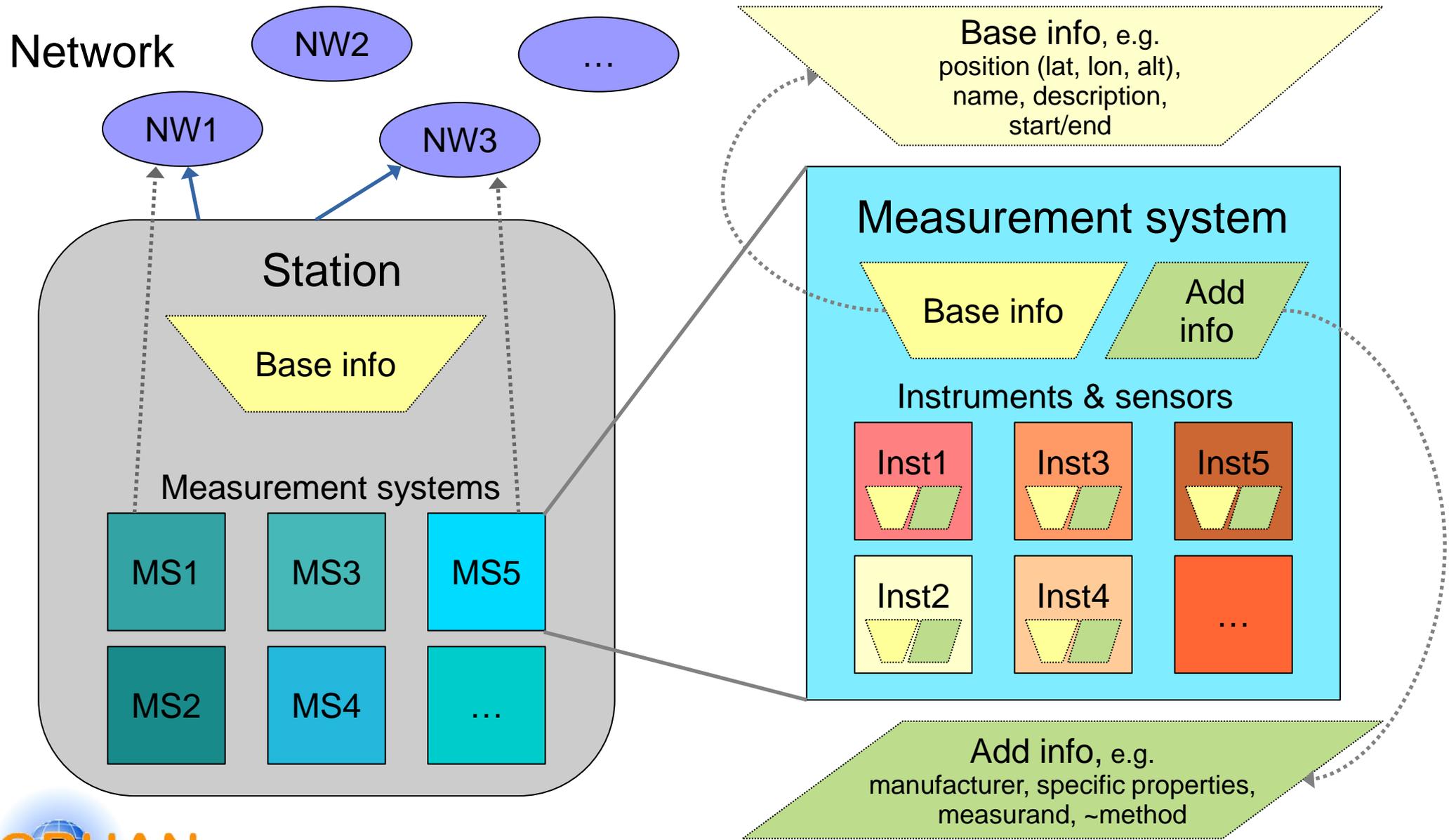
Deutscher Wetterdienst
Wetter und Klima aus einer Hand

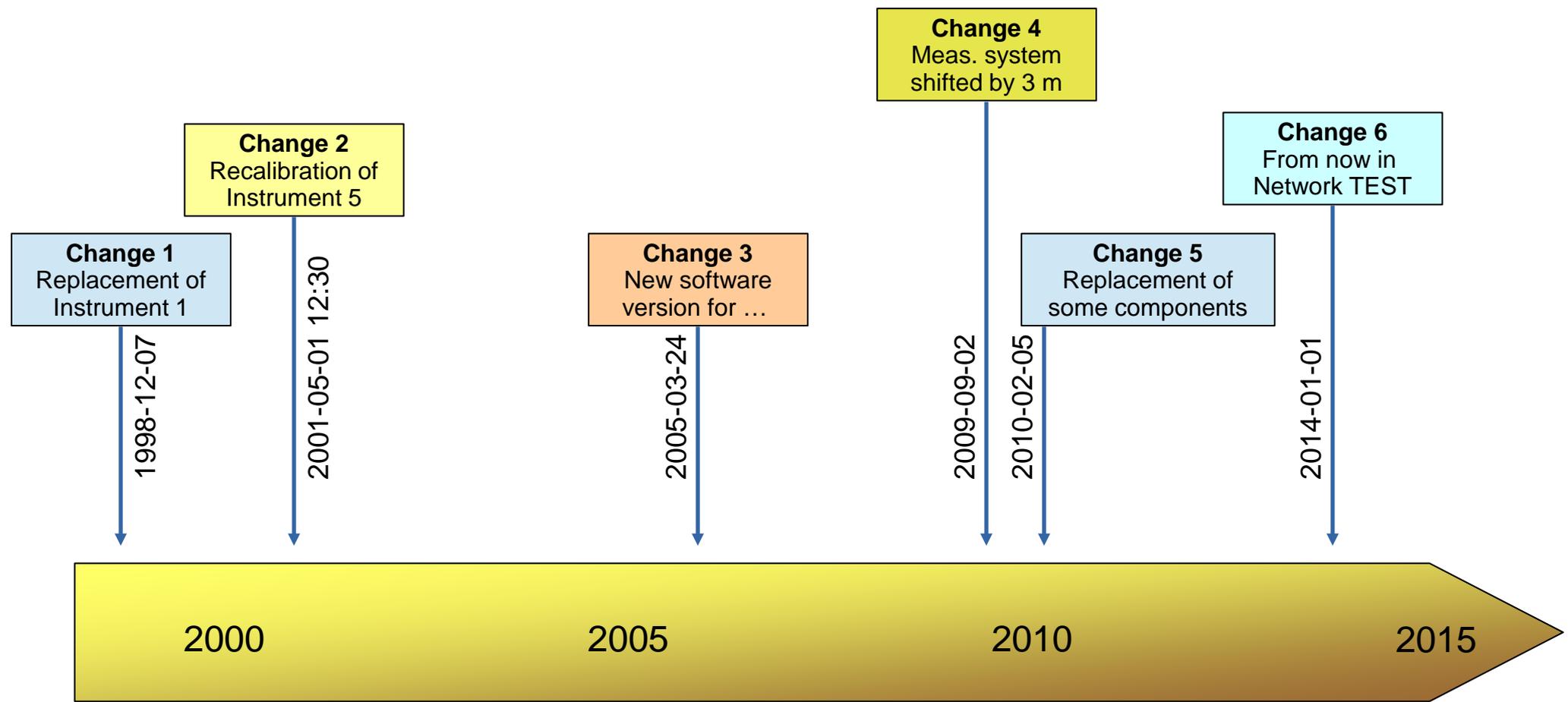


Part 2: Station & meas. systems

Deutscher Wetterdienst
Wetter und Klima aus einer Hand







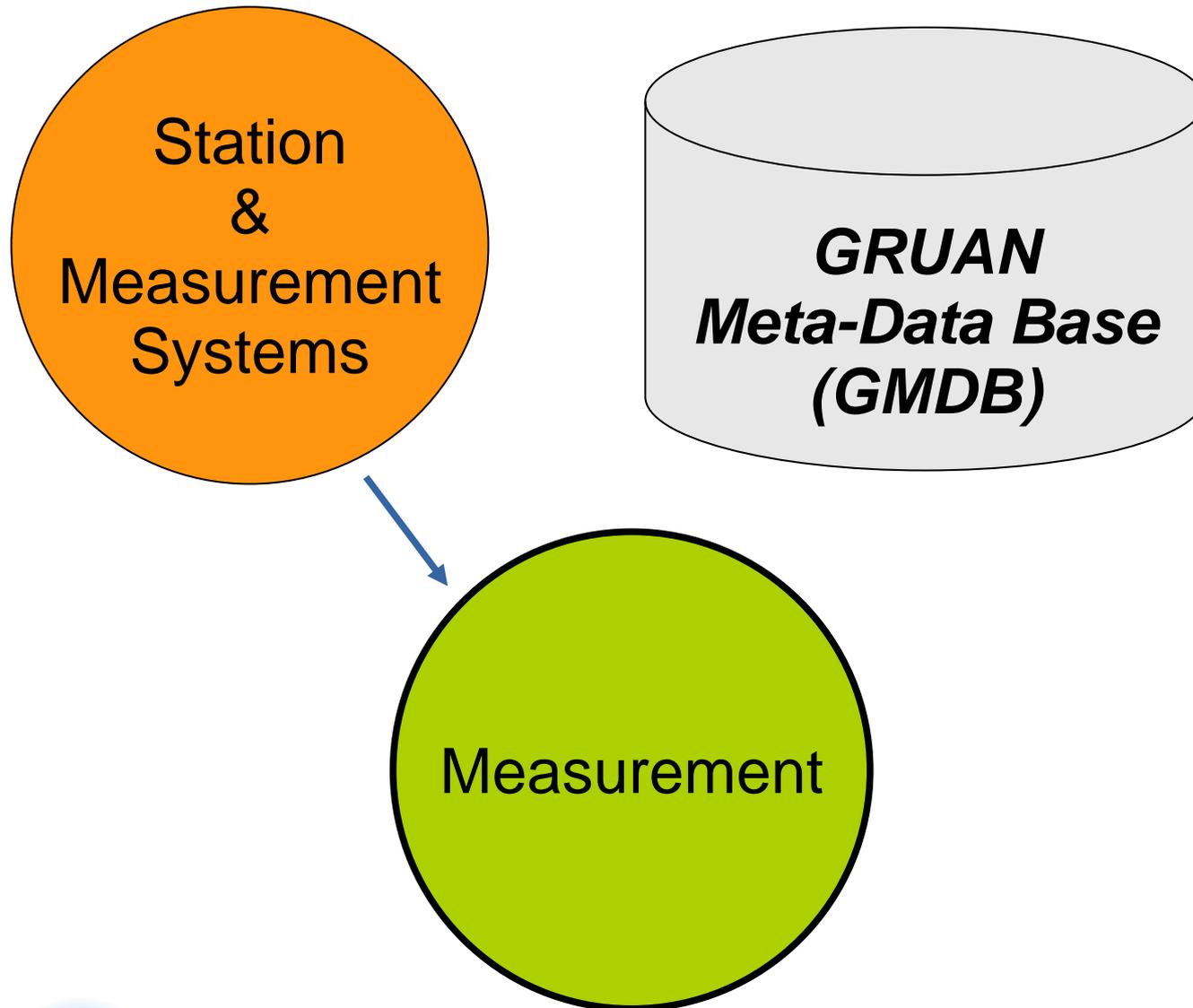
→ General information about a station

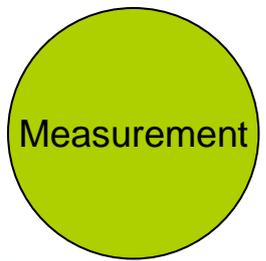
- When, where, what, who, ...

→ Instrumentation

- GRUAN measurement systems
- Detailed description of equipment/instrumentation of such a system (including their properties)
- History of changes of components (and their properties)

→ Focus → ***traceability of change management over time***





→ Tool to collect meta-data and raw data

- For use at the stations

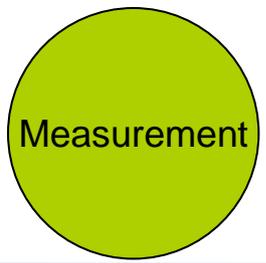
→ Features of newest version 0.5

- Improved template management
- Extracting of meta-data from different files
- Validation of all collected meta-data
- New documentation GRUAN-TD-3 → *in review*

→ Coming features (end of 2014)

- Management of general meta-data of station → like operator, equipment, ...
- Access to data product statistics of station → like data reports, ...





General information



Steps

1. Observation
2. Instrumentation
3. Instrument checks
4. Launch conditions
5. Attach files
6. Upload

Observation

GRUAN Station

Measuring System

Please select an observation type for which the new event should be created.

Observation Type

Please choose the standard time (e.g. 00, 06, 12) of RsLaunch event and add following details.

Scheduled Date (UT)

Balloon No.

Version

Site-internal Code

Main Operator

Comments

Experiment This event is an experimental measurement. (Data will not be published)

Please choose the campaign and add it with a specific code for this event.

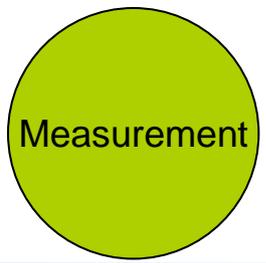
Campaigns

1 Where, what, when

2 Site-internal, who

3 Campaigns





Instrumentation



Instruments and Sounding Components

Add a part [X] [▲] [▼]

- Ground Equipment
 - 00 - DC3-ROUTINE_001 / DPS (Y51304)
 - 01 - GC25-ROUTINE_001 / CheckTool (lin-gc25-1)
 - 02 - POT100-BLUE_001 / CheckTool (lin-pot100-2)
 - 03 - O3-SUITE-1_001 / DPS (lin-o3suite-1)
 - 04 - TOP-3A_001 / CheckTool (lin-top3a-1)
- Launch Equipment
 - 05 - TA1500 / Balloon
 - 06 - TP-103 / Parachute
 - 07 - UW1 / Unwinder
 - 08 - BLOCK-RIG / Rig
 - 09 - RS92-SGPL / Sonde (J2813963)
 - 10 - SPC-6a / Sonde (6a22224)

Description

Type: SONDE
 Model: SPC-6a [Change]
 SN / Part ID: 6a22224

Operator: [▼] [X]
 Processing: Add processing [▼] [X]

03-SUITE-1 - LIN-O3-SUITE (lin-o3-...)
 DC3-ROUTINE - DC3-MW31 (Y513...)

Experiment? This instrument is experimental.
 Comments: first version evaluation

Name ^	Value	Unit
InterfaceBoard	OIF-92	[-]
InterfaceBoardSN	G09314051	[-]
Reuse	yes	[-]
Weight	600	[g]
WithInsideHeater	yes	[-]
WithInterfaceBoard	yes	[-]

Is a heater (like a warming package or electronic heating element) inside the box?

1 Ground equipment

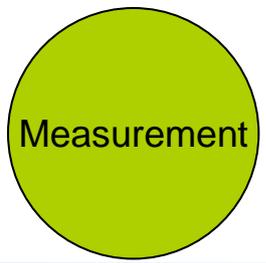
2 Launch equipment

3 General infos

5 Links to processing systems

4 Properties





Special actions



Instruments ground checks

Add a check [X]

Preparation ECC | SPC-6a (6a22224) --> 2014-01-22 07:00

GroundCheck RS92 | RS92-SGPL (J2813963) --> 2014-02-26 10:27

GroundCheck SHC (100%-Pot) | RS92-SGPL (J2813963) --> 2014-02-26 10:28

Preparation ECC | SPC-6a (6a22224) --> 2014-02-26 10:30

1 Ground checks and preparations

Description

Check: PREP-ECC | Preparation E... [X]

Instrument: SPC-6a (6a22224) [X]

Check Tool: TOP-3A (lin-top3a-1) [X]

Check Date: 2014-02-26 10:30 [X]

Operator: [X]

Comments: []

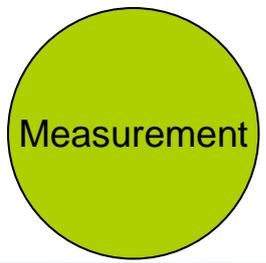
Name ^	Value	Unit
ECC.DecayTime	27.68	[s]
ECC.FirstPreparationDate	2014-01-22 07:00:00	[-]
ECC.FlowRateTime	25.94	[s]
ECC.FlowRateTimeCorr	no	[-]
ECC.FlowRateTimeHumid		[s]
ECC.FlowRateTimeMPrin...	bubble flowmeter	[-]
ECC.Ib0	0.10	[µA]
ECC.Ib1	0.06	[µA]
ECC.Ib2	0.04	[µA]
ECC.LabPressure	1002.4	[hPa]
ECC.LabRelativeHumidity	31.7	[%]
ECC.LabTemperature	20.54	[°C]
ECC.PumpCurrent	80	[mA]
ECC.PumpPressure	0.6	[kPa]

Background current in lab before exposure to ozone

2 General infos

3 Properties





Related data files



Files 1

List of files to attach		
00 - DC3-ROUTINE_001 / DPS (Y51304)		
DC3DB - Vaisala DC3 (*.dc3db)	OK [required]	Lindenberg_20140226_104845.dc3db
03 - O3-SUITE-1_001 / DPS (lin-o3suite-1)		
ARC - O3-Suite (Lindenberg) (*.ARC)	OK [required]	140226.ARC
TOR - O3-Suite (Lindenberg) (*.TOR)	OK [optional]	140226.TOR
00a - O3-Suite (Lindenberg) (*.00a)	OK [required]	14022612.00a
00c - O3-Suite (Lindenberg) (*.00c)	OK [optional]	14022612.00c
PLE - O3-Suite (Lindenberg) (*.PLE)	[optional]	-
08 - BLOCK-RIG / Rig		
PNG - Image File (*.png *.PNG)	OK [optional]	Ozon+RS92_Rout_intFS.PNG

File infos 2

Selected file of DC3-MW31

Selected Part: 00 - DC3-ROUTINE_001 / DPS (Y51304) [Add Files]

Linked Instruments: 9 - RS92-SGPL (J2813963), 10 - SPC-6a (6a22224)

This instrument has corrupt or missing data files.

File Information:

Type: DC3DB - Vaisala DC3 (*.dc3db)

Required?: [required]

Status: File is OK

File Name: Lindenberg_20140226_104845.dc3db [Remove File]

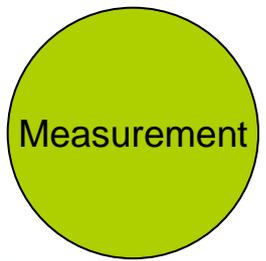
File Path: [FTP:RadiosondeErsatzFTP] /SoundingArchive/ [Add File]

Checksum: 1,791,909,018 [Check File]

Size: 9,900,032 [View File]

3 Extract meta data





Summary of part 3



- General information about a measurement
 - When, where, what, who, ...

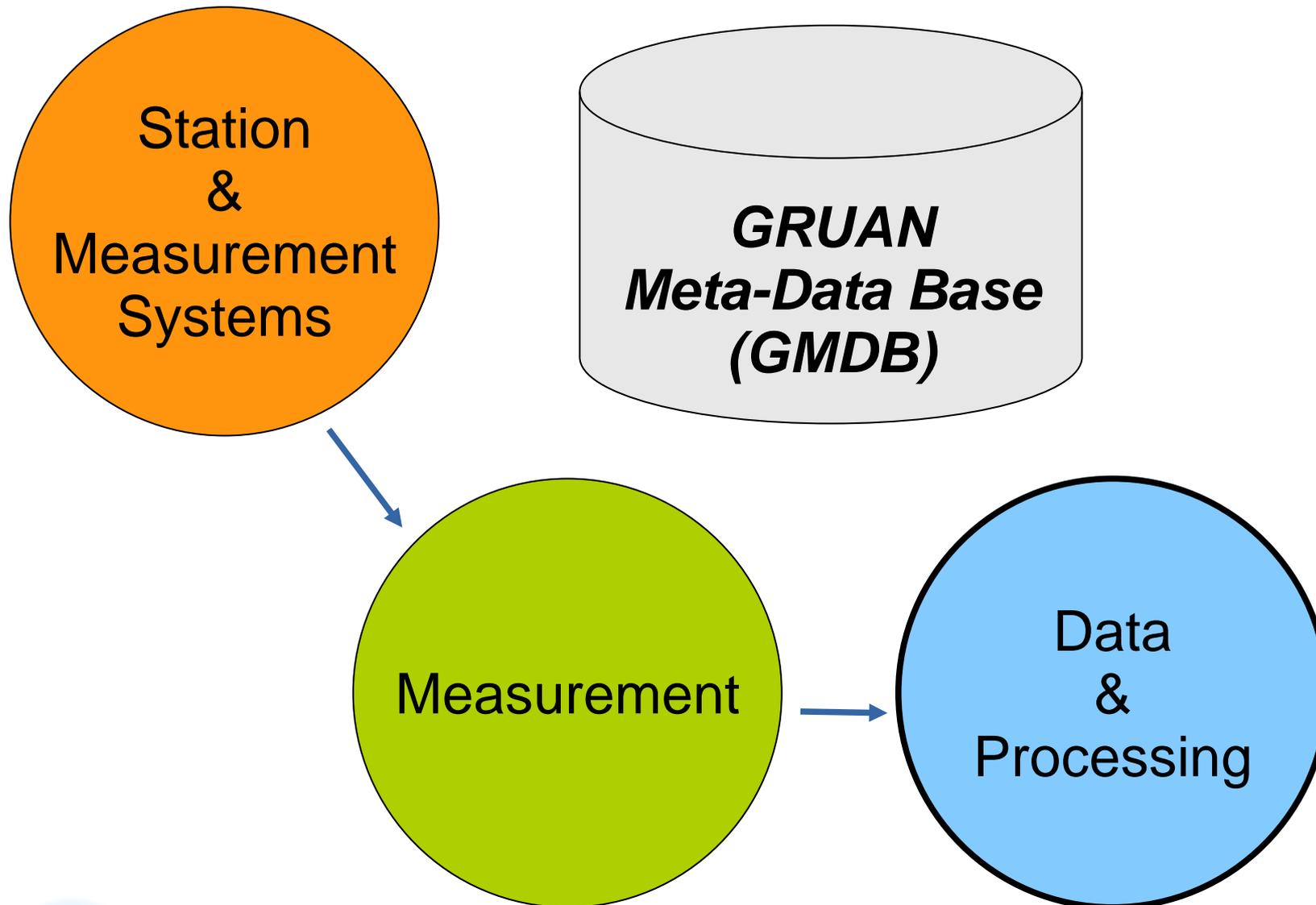
- Instrumentation
 - Used equipment including specific properties
 - Interaction between components, like sonde ↔ telemetry system

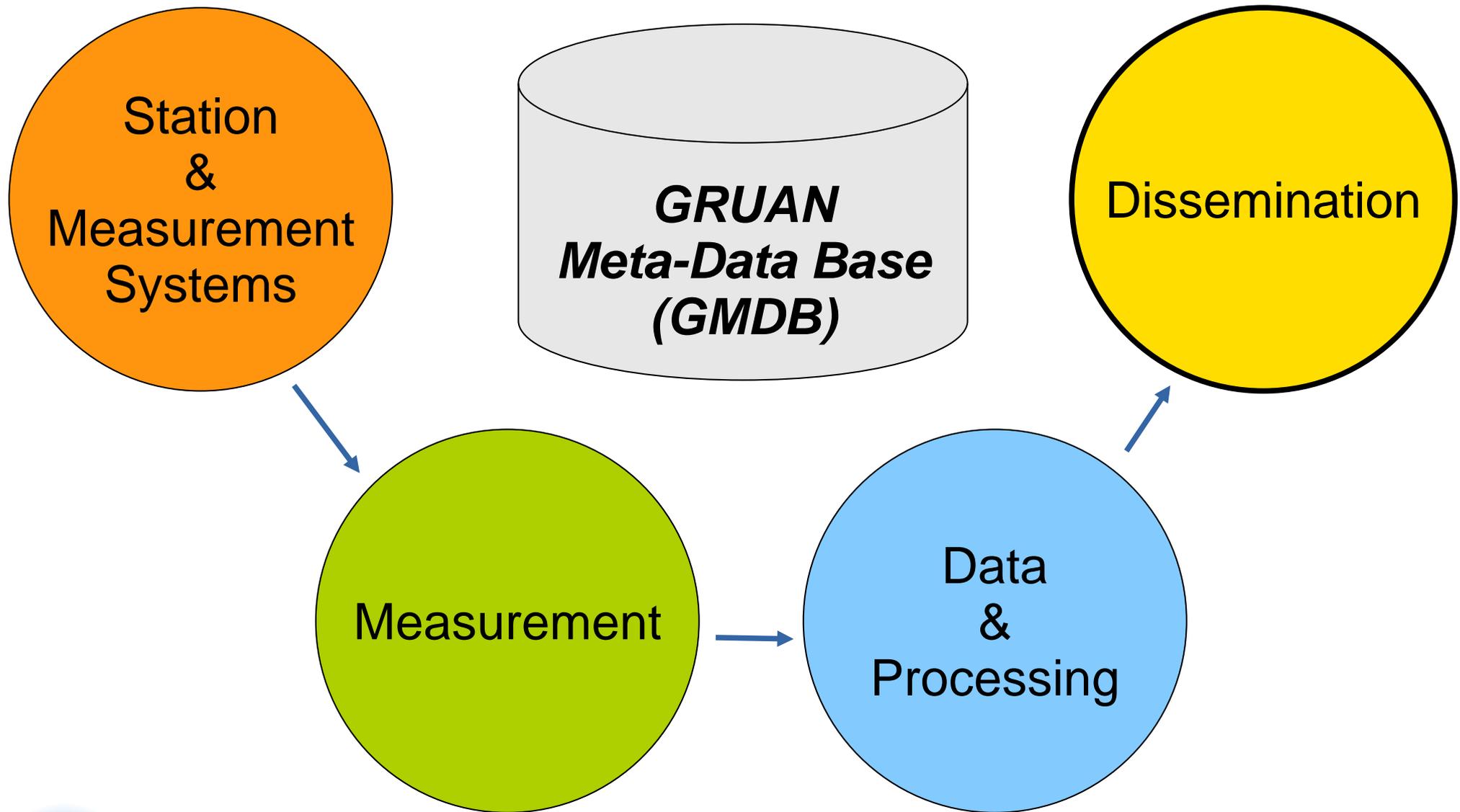
- Special actions
 - Ground checks, instrument preparations, ...

- Related raw data
 - Raw data of measurement

- Development of tools to collect these meta-data, e.g. RsLaunchClient









Data products



- Meta-data included in GRUAN data product files
 - Using of a file format, that allows self-description of content → NetCDF

- Using of standards
 - Who is our audience?
 - Climate and Forecast (CF)
 - Includes only: *when, where, who, what*

- Additional meta-data (GRUAN-specific)
 - Instrumentation, equipment
 - Preparation, ground checks
 - Results of quality check





→ WMO Information System (WIS)

- Find (and get) GRUAN data
- GRUAN data products at GISC Offenbach (gisc.dwd.de)
- Product keys, like → `org.gruan.RS92-GDP.v002.LIN.2013`

→ DataCite

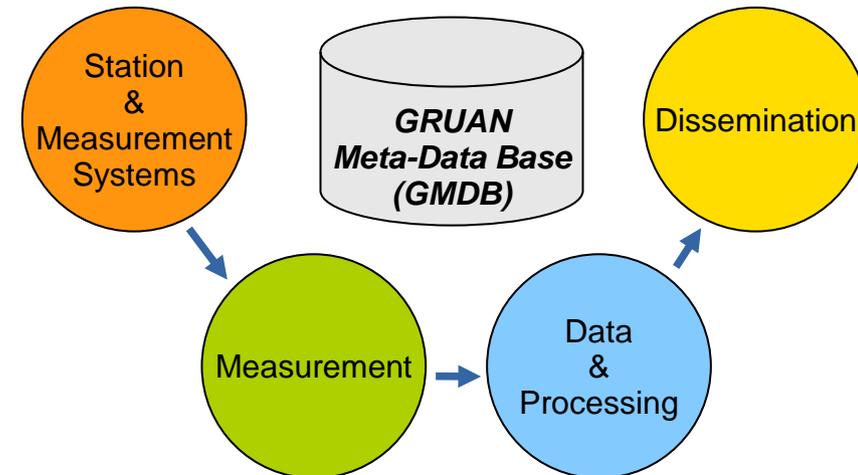
- DOI's for specific GRUAN data products
- Using of special “landing pages” providing relevant meta-data
- In planning phase → discussion here at ICM-6

→ Other services

- Always → Prepare meta-data in a service-specific way



- GMDB is existent and in operation
- Complex structured meta-data
- GMDB is the backbone of all GRUAN data flow



- At the moment → Only a small part of meta-data goes out.
- In the future → ***How can we enlarge the utility for you?***

Thank you for your
attention.