

# Scene setting

- Start small, but start
- Must make compromises
- Next few years is learning, resolving questions, forming the 'How to' book.
- It needs your help, lead centre and working group cannot do alone!
  - Data (sites signed up)
  - Scientific and technical expertise to resolve the issues.

# Radiosondes

- Two remaining sores:
  - Scheduling
  - What is a reference sonde and how do we start using it?
- Not going to be resolved unambiguously on time frame of starting network so lets be pragmatic ...

## Session 3 Radiosonde and Instrumentation and Observation

Cascade (implement step by step)

- weekly reference OR transfer standard sonde
  - 1 x monthly – cluster (CFH, Snow White, RS92, ...)
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- Regular soundings (00 +12)
  - Also need to avoid vendor lock-in – periodic intercomparisons.

# Resolving the sores

- Scientific issue.
- Can we find enough people with divergent views to write a SHORT document that outlines the issues and how we could resolve them unambiguously to everybody's satisfaction???
- Can we then find the effort to undertake these studies???!?!???

## Session 3 Radiosonde and Instrumentation and Observation

Action	Deadline	who
Communication to satellite community (GSICS), sponsoring for additional radiosonde launchings	N/A	Mitch Goldberg, GCOS secretariat
Organize intercomparison of radiosondes to choose which can join the club	2010	Lead Centre, WGARO, CIMO

# Ground based instrumentation / observing practices

- Need GPS PW to be GRUAN site
- Recommend at least one additional radiometer
- Practices need to be sufficiently standardised to be able to intercompare (how was discussed later ...).

## Session 4 Instrumentation

Action	Deadline	who
First draft of manual / guidelines for GRUAN observations (assuring comparability, spreading best practices, sharing Lessons authorativ data sets, reporting)	Jan 2009	Lead Centre
Mentoring Programme to spread best practices Workshop/ training		Lead centre

# Session 5 – QC / QA

- How do we intercompare stations and ensure adequate uncertainty estimates?
  - Audits
  - Intercomparison campaigns
  - Mobile facility
  - Use a common measure across network in interim?
- We are not the first to consider – can we learn from others?
- How to spread best practice?
- Can we simply use ARM processes here?



## Session 5 Data dissemination and QC/QA (Matthew)

Action	Deadline	who
Establish procedure for Intercomparison of stations data.		WGARO? Lead Centre? NMIs?
Quality control procedures to be resolved		ARM? / Lead Centre? / WGARO?

# Data dissemination

- Data formats
- Data policy
- Data dissemination model
- Tracking of usage
- Metadata
- Offers from US to consider

Action	Deadline	who
Establish data policy	May 2008	WGARO? Lead Centre? GCOS secretariat, AOPC
Consider various options on data dissemination	Summer 2008	Lead Centre / NOAA / ARM / WGARO
Devise data dissemination practices (model, format, metadata, monitoring of usage)	2009	ARM? / Lead Centre? / WGARO? Help from many ... any volunteers? 😊

## Session 2 Initial Site Selection (Holger and Leo)

**Minimum requirement** (priority 1) of a GRUAN station given in the GCOS report:

- Standard surface variables (pressure, temperature, humidity and wind)
  - Simultaneous balloon-based observations of temperature, water vapour and winds, both on ascent and descent **Note: not stipulated as to frequency**
  - Pressure and GPS/radar height on balloons
  - Ground based GPS receivers to measure total column water vapour
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- Stations do not need to be Lindenberg equipment rich to join but there does need to be an undertaking to move in that direction as funds permit over time.

# Initial list to be invited

- Lauder, Payernne. Boulder
- Xilinhot, Beltsville. Potenza
- Cabauw, Lindenberg, 3 ARM (Alaska. Darwin. Central plains), Sodankyla
- South Pole.

## Session 2 Initial Site Selection (Holger and Leo)

<b>Action</b>	<b>Deadline</b>	<b>who</b>
List of initial station candidates (fulfilling the minimum requirement of GCOS report: ground based instrumentation, regular routing sounding and reference sondes)	Workshop	Holger Voemel, group on station selection
Invite/designate initial candidate stations to become a GRUAN site	30th April	GCOS Secretariat following AOPC

## Session 2 Initial Site Selection

Develop Definition for optimal GRUAN site to decide on future sites (optimal location/climate zone, institution etc.)		WGARO / Lead Centre
Develop some guidance as to how to implement site improvements for maximum benefit (in what order? Why?).	?	?
Invitation to countries/sponsors to develop extra sites to become GRUAN sites	2010	GCOS secretariat

The end unless we have time ...



## General Actions

Action	Deadline	who
Meeting Report		Stephan, Stefanie
Workshop for intercomparison of radiosondes		
Define procedure on how to decide on practical/manual issues	27th Feb 2008	Dave
Prepare telephone conference of working group	Till end of May	
Decide on date/place for the next meeting	28th Feb 2007	
Establish a funding mechanism like the GCOS System Improvement		

## General Actions

Action	Deadline	who
Decide on a date to start the GRUAN observation network	28th Feb 2008	Meeting Members
Terms of References for GCOS/WCRP AOPC/ WG-ARO	28th Feb 2008	Dave and Stephan
Decide on GRUAN Implementation Plan	28th Feb 2008	Lead Centre
Next meeting/ telephone conference of WG		
Make the presentations of the meeting available on GCOS website	15th March 2008	Stefanie/Stephan

# Content of Report

- Overview of each Session
- Organigram of working relation between WG, Lead Centre, GCOS Secretariat etc.
- Description for schedule of radiosondes launches
- Instrumentation and Observation required at the initial GRUAN sites
- Work Plan with all Action Items