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Im Auftrag des
KERJASAMA REPUBLIK INDONESIA – REPUBLIK FEDERAL JERMAN
Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit

The new BMGK Climate Change Information System to Address Cross-Sectoral Drought Information Needs

– report from the work bench –

BMKG

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I. Background
II. Vision of the Climate Change Information System
III. Status of work with respect to “drought"
IV. Conclusions

Background

Project: ***Data and Information Management on Adaptation to Climate Change (DATACLIM)***

- Funded by the *International Climate Initiative* (ICI) of the *German Federal Ministry for the Environment*, Nature Conservation and Nuclear Safety (BMU)
- Implemented by BMKG and GIZ (2011 – 2013 will be extended to 03/2014)

Background

Project objectives I:

Preserving the climate heritage of Indonesia:

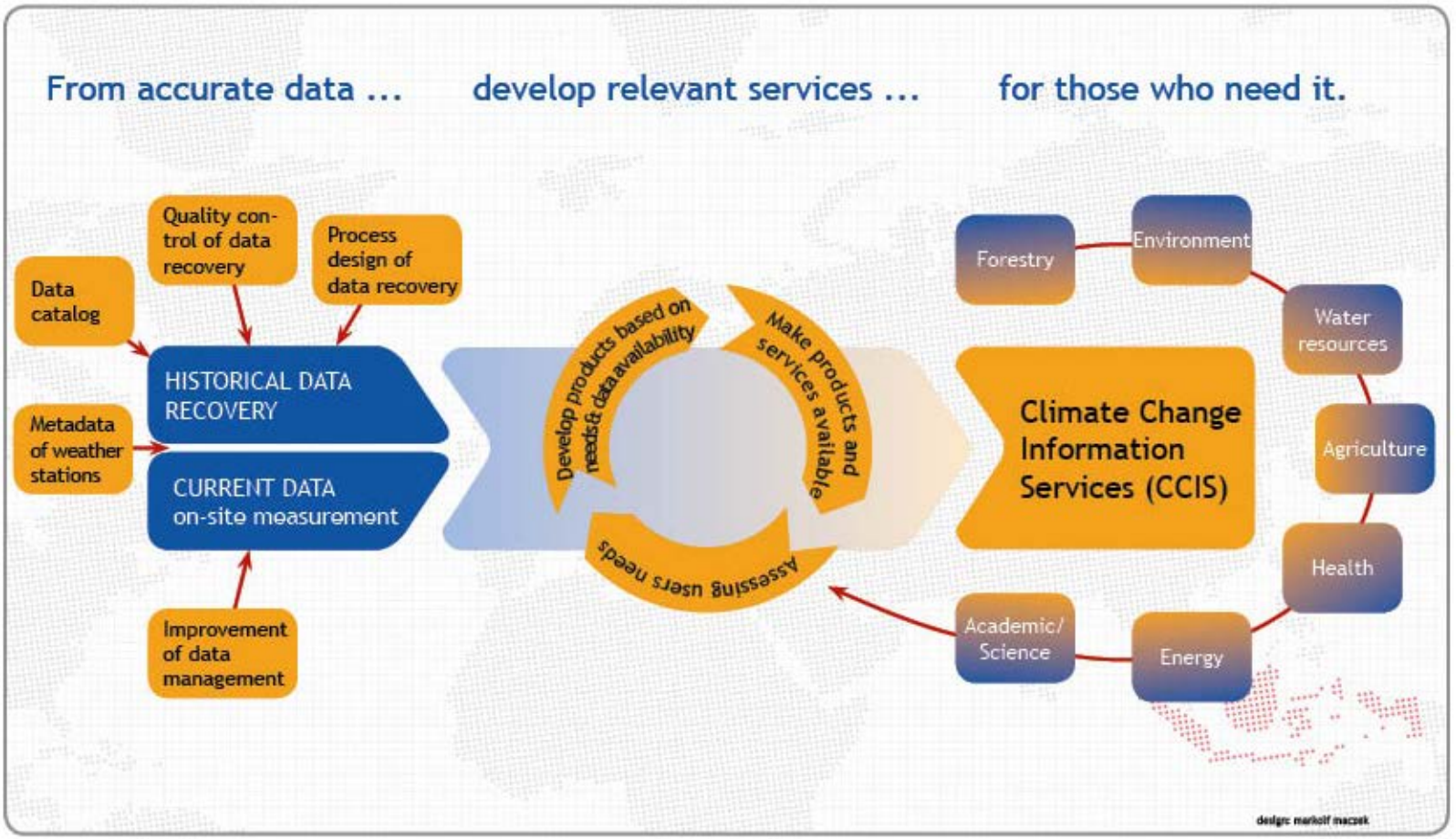
Historical Climate Data Recovery of:

- daily data from > 160 meteorological stations 1970 until today
- > 3000 daily rainfall gauge data (from approx. 6000)

Background

Project objectives II:

- Creating a “Climate Change Information System” (CCIS) to address the needs of the Public Sector regarding climate stimuli information for adaptation to climate change.
- This CCIS shall address the information needs of the **“Indonesian Adaptation Action Plan” (RAN-API)**


From accurate data ...
develop relevant services ...
for those who need it.
Quality con-trol of data recovery
Process design of data recovery
Data catalog
HISTORICAL DATA RECOVERY
Metadata of weather stations
CURRENT DATA on-site measurement
Improvement of data management
Develop products based on needs & data availability
Make products and services available
Assessing users needs
Climate Change Information Services (CCIS)
Forestry
Environment
Water resources
Agriculture
Health
Energy
Academic/ Science

Vision

- The Climate Change Information System provides easy access to understandable climate change information for BMKG itself, the public sector (RAN-API stakeholders) and the general public.

Status of work with respect to “drought”

Identifying needs for climate information

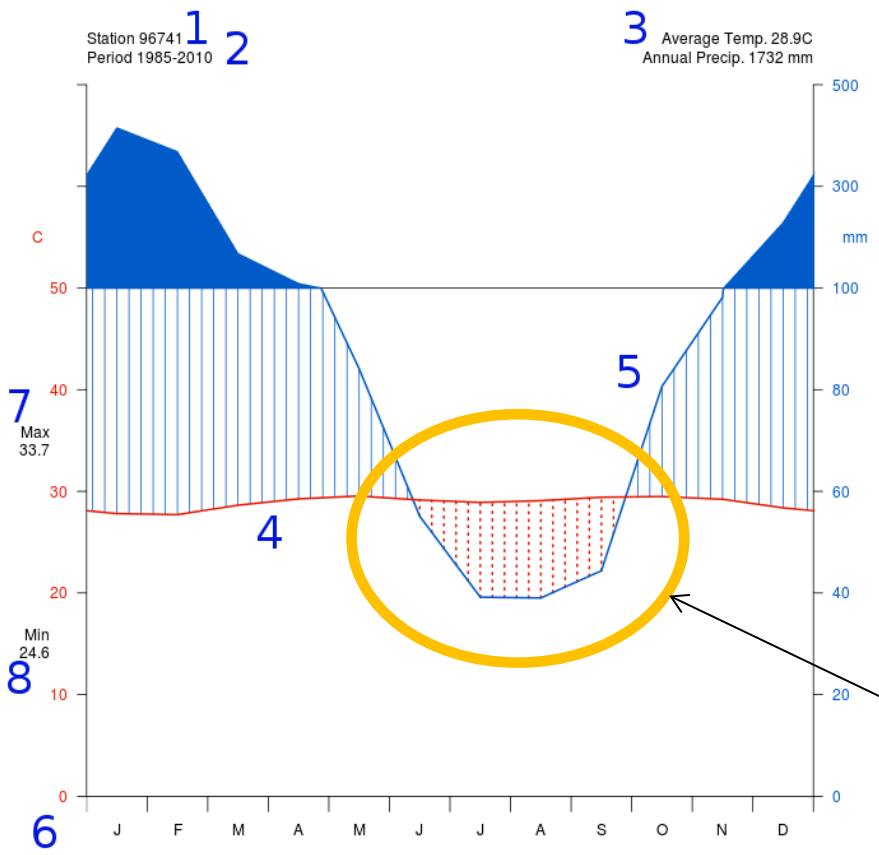
Assess climate information needs for cross sectoral drought management:

- In sectoral Focal Group Discussions (FGD) specific demand was/is identified
- Identify climate indices that match the needs (using scientific sound basis e.g. ClimDex, and others)

Status of work with respect to “drought”

- 40 climate parameters and indices derived and mapped to sectoral needs for > 50 stations
- For drought and warm extremes e.g. :
  - Walter-Lieth Diagrams
  - Consecutive Dry Days (CDD)
  - Standardised Precipitation Index (SPI)
  - Warm Spell (WS)
  - Hot heat index (HHI)
  - Length of Dry Season (LDS)
  - Onset Dry Season (ONDS)

Walter-Lieth climate diagram



1 Stamar Tanjung Priok in Jakarta:

2 Time period of observation

3 Annual average of temperature and annual precipitation sum

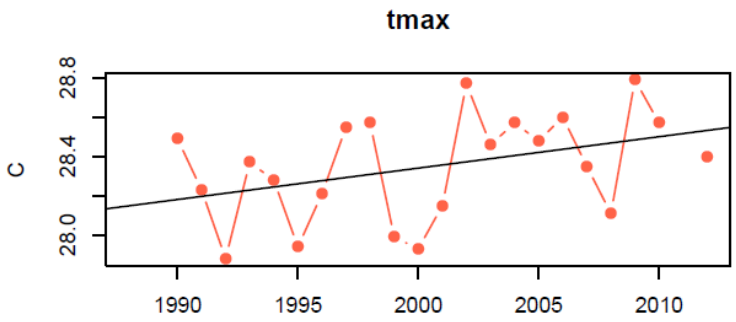
4 (red) Average temperature curve

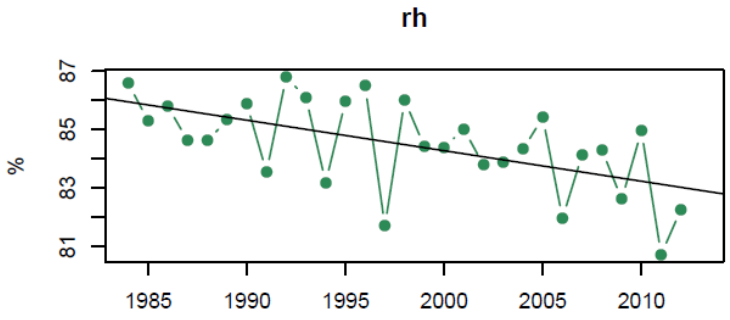
5 (blue) Precipitation sum curve

Dry season

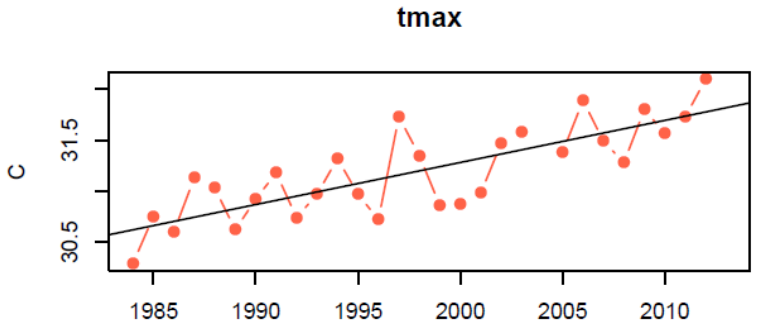
First glimpse to the data

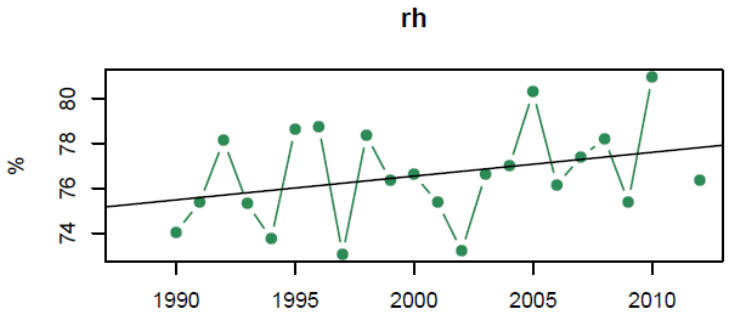
Bogor (96753)





Malang (96943)





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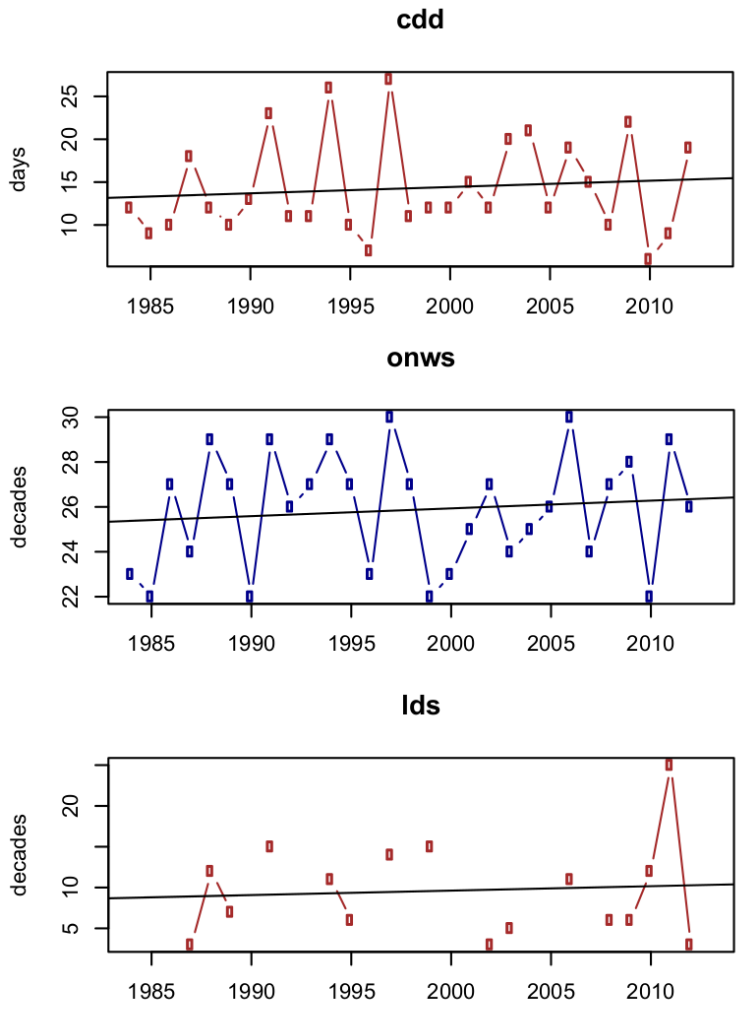

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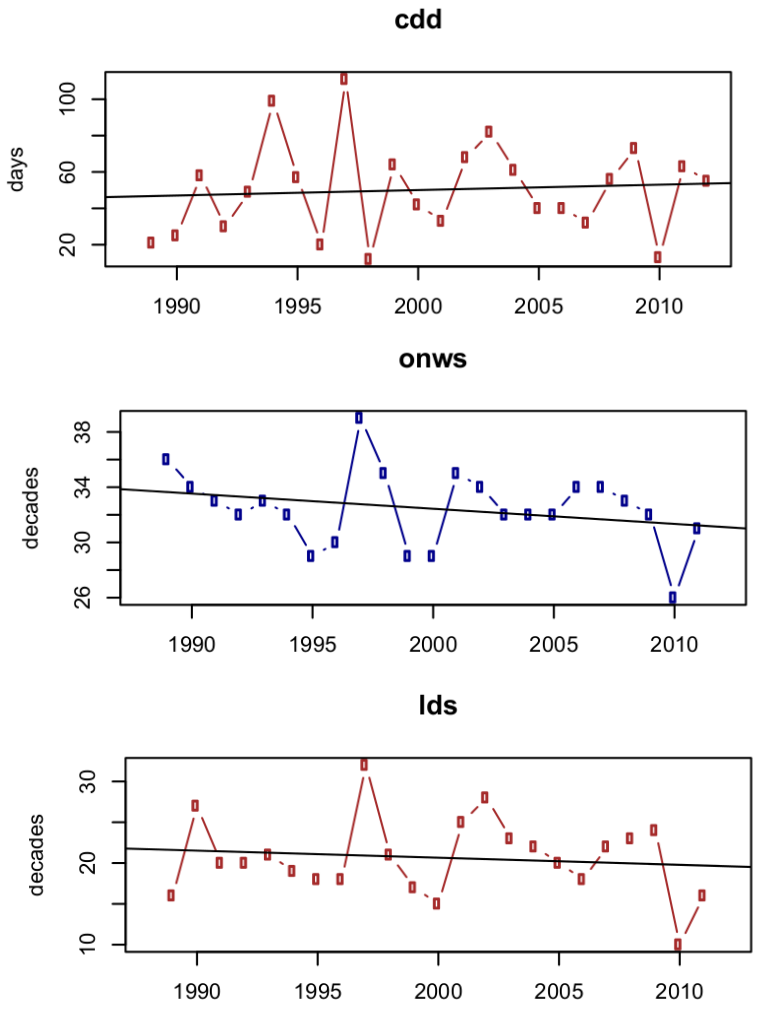
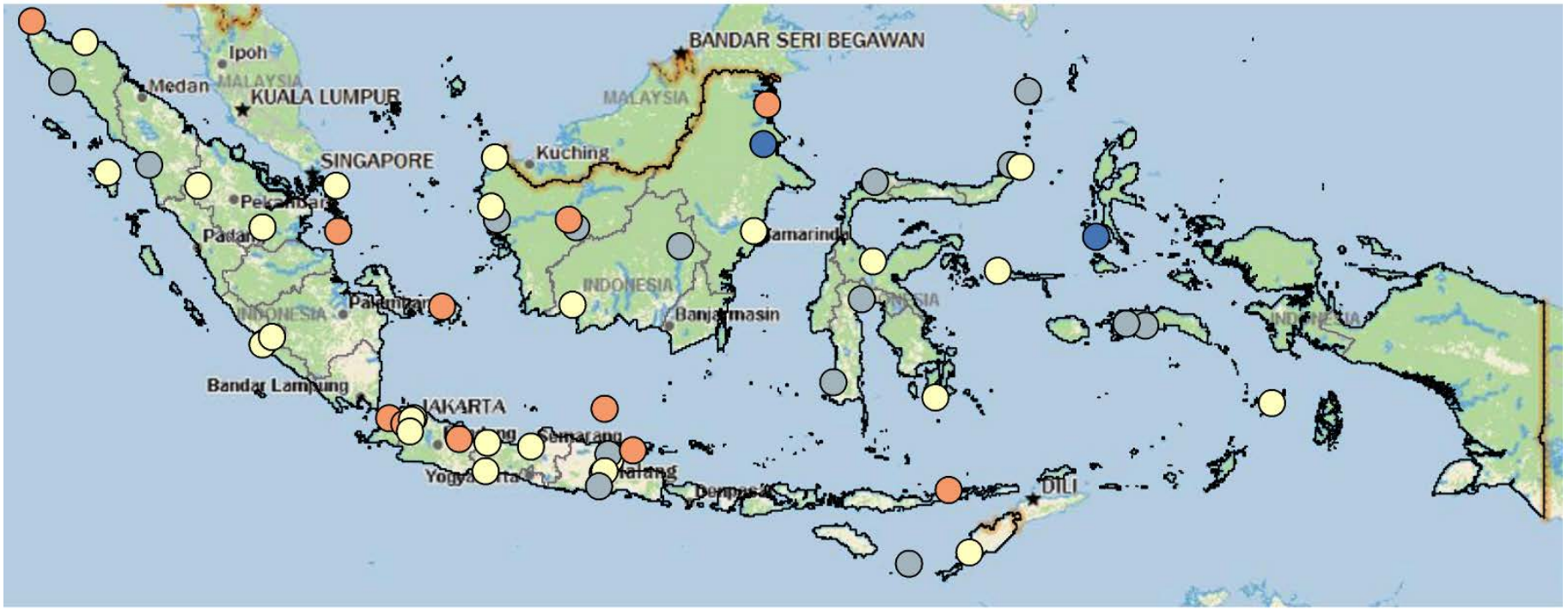
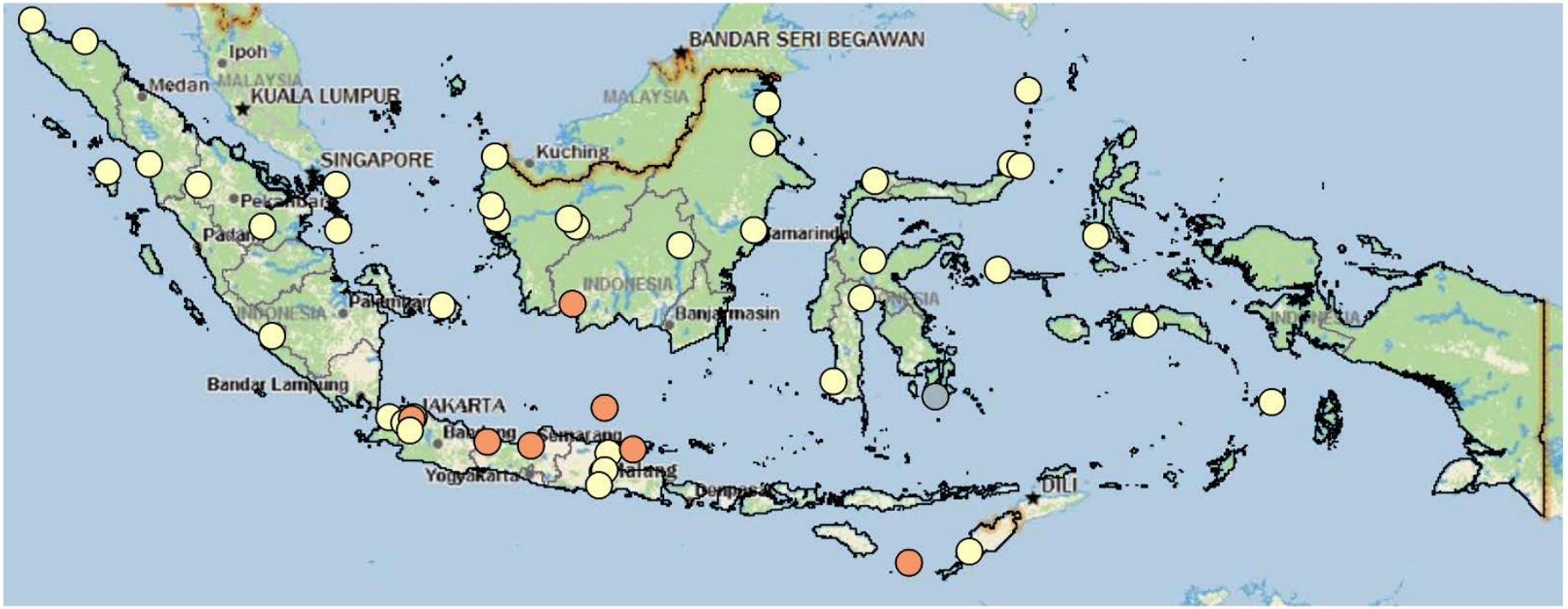


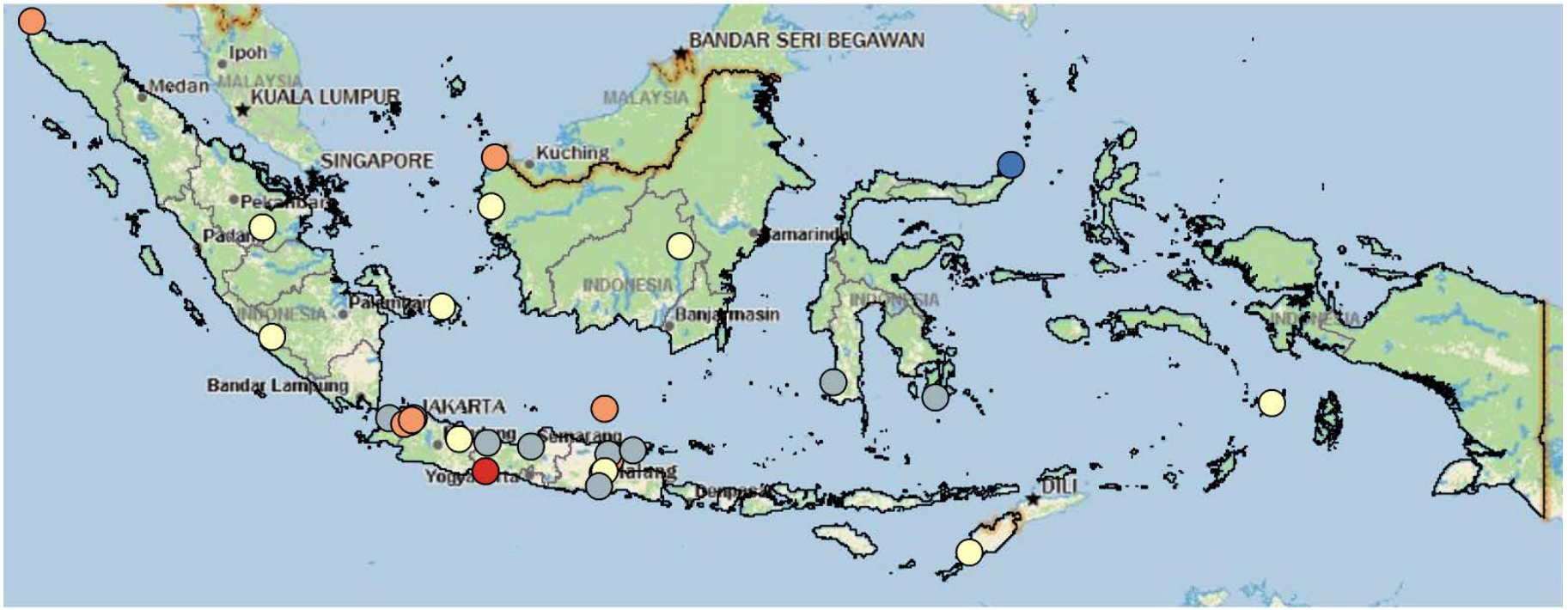
Trend of Standardized Precipitation Index SPI (1985-2010)



Trend of Consecutive Dry Days CDD (1985-2010)



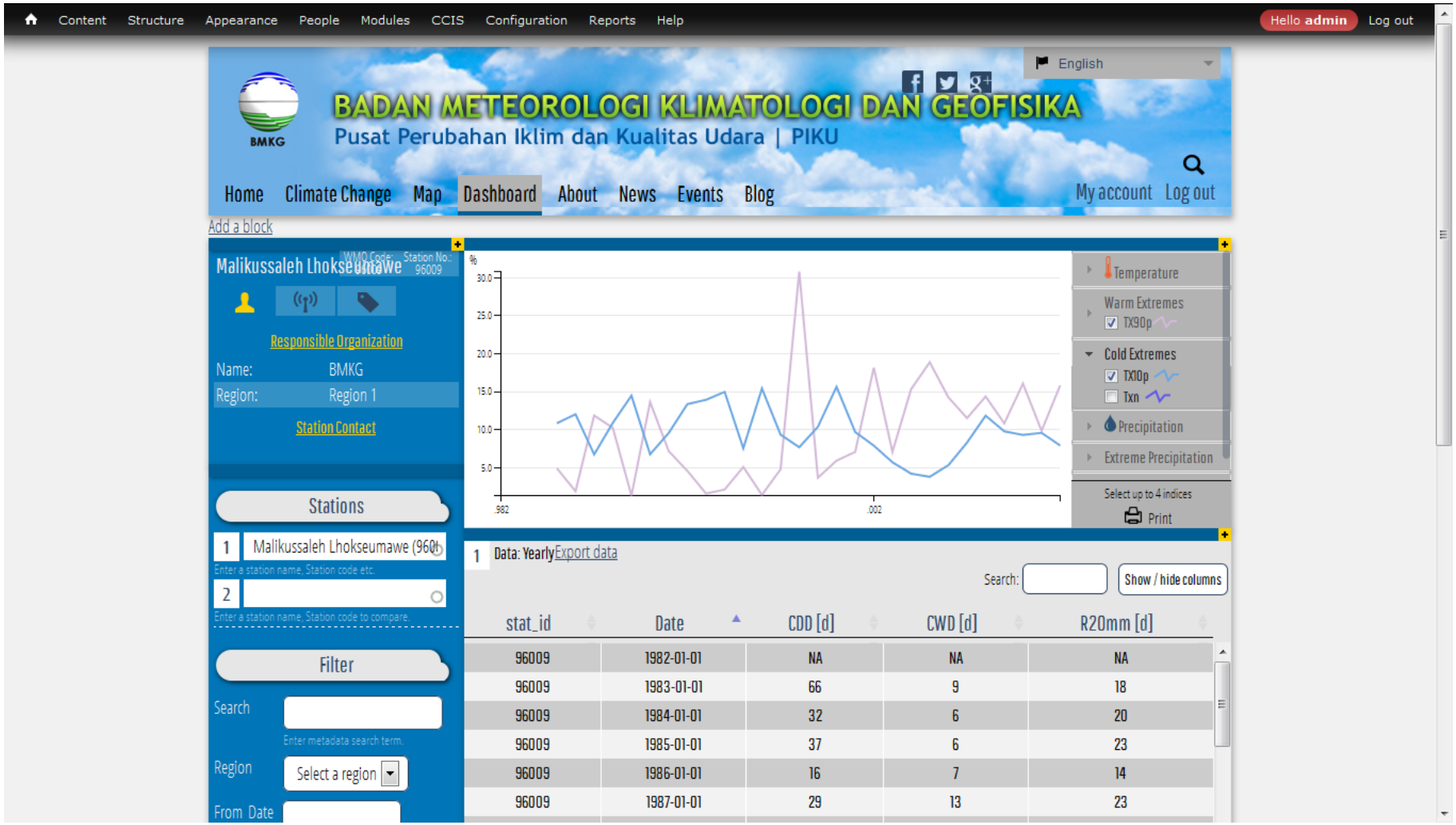
Trend of Length of Dry Season LDS (1985-2010)



Status of work (cont.):

The CCIS web portal key features:

- Easy access to climate information in different formats (time series, tables, maps, other)
- Climate information product management provides full control for the operator who has access to which product
- User management allows to create subsets of information to address individual user needs
- Expansible: integration of other information sources easily possible
- CMS based web portal
- Open source license


Content Structure Appearance People Modules CCIS Configuration Reports Help
Hello admin Log out
English
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Add a block
Malikussaleh Lhokseumawe
WMO Code: Station No.: 96009
Responsible Organization
Name: BMKG
Region: Region 1
Station Contact
Stations
1 Malikussaleh Lhokseumawe (960
Enter a station name, Station code etc.
2
Enter a station name, Station code to compare.
Filter
Search
Enter metadata search term.
Region Select a region
From Date
Temperature
Warm Extremes
TX90p
Cold Extremes
TX10p
Txn
Precipitation
Extreme Precipitation
Select up to 4 indices
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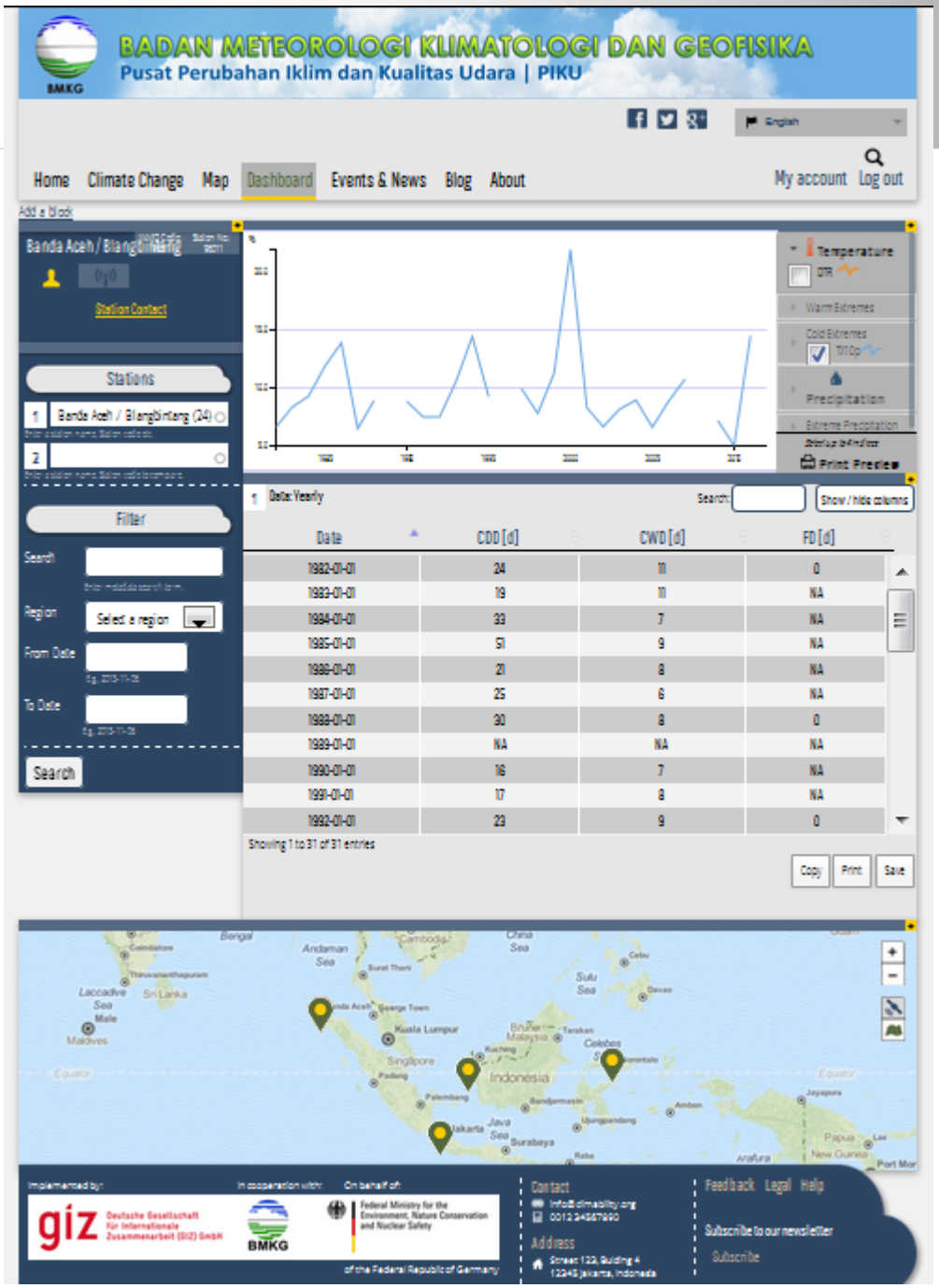
Search:
Show / hide columns
stat_id Date CDD [d] CWD [d] R20mm [d]
96009 1982-01-01 NA NA NA
96009 1983-01-01 66 9 18
96009 1984-01-01 32 6 20
96009 1985-01-01 37 6 23
96009 1986-01-01 16 7 14
96009 1987-01-01 29 13 23

- Live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From Date
To Date
Temperature
Precipitation
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1982-01-01 24 11 0
1983-01-01 19 11 NA
1984-01-01 33 7 NA
1985-01-01 51 9 NA
1986-01-01 21 8 NA
1987-01-01 25 6 NA
1988-01-01 30 8 0
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Malaysia
Singapore
Sri Lanka
Maldives
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of the Federal Republic of Germany
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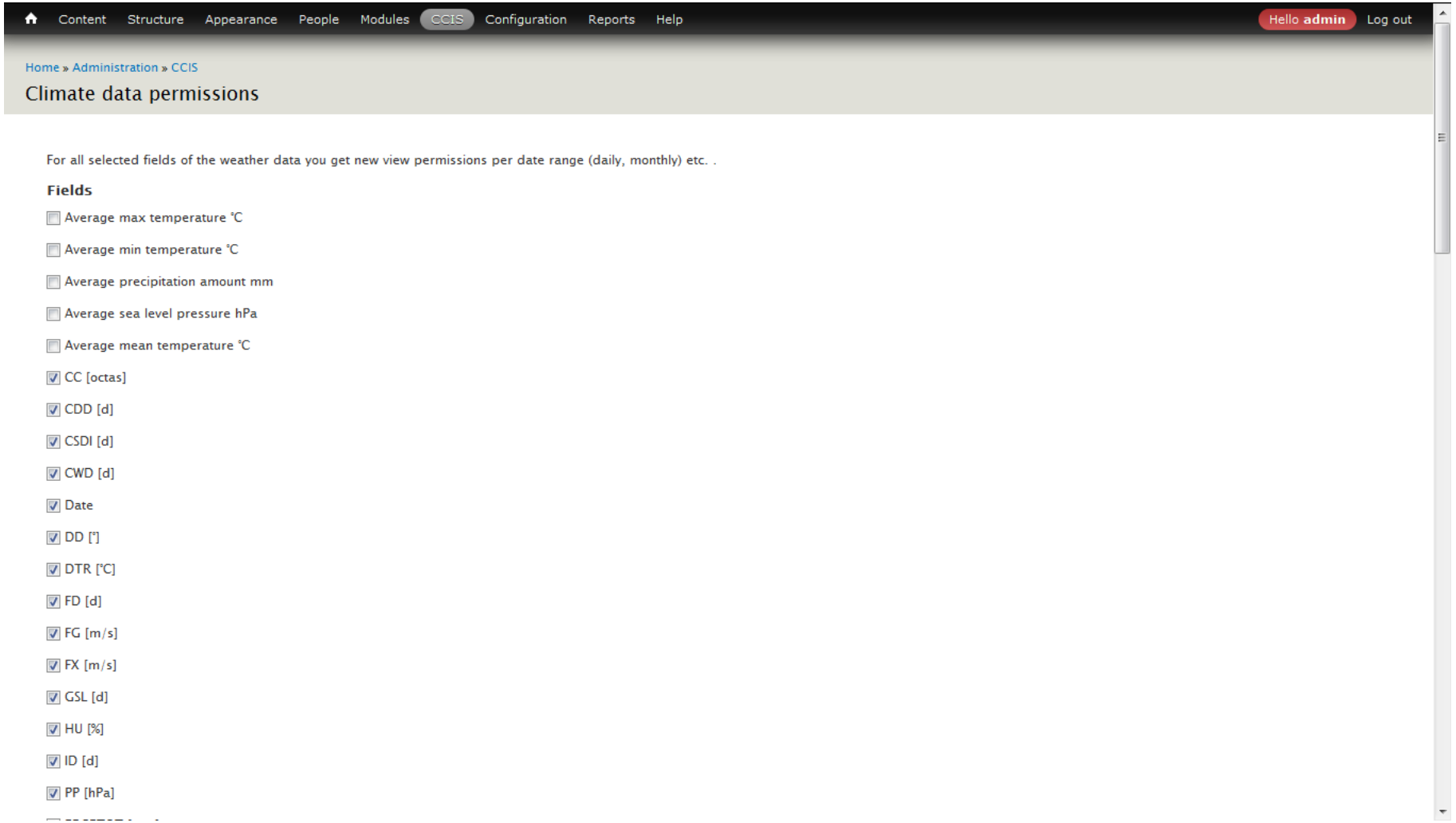
Content
Structure
Appearance
People
Modules
CCIS
Configuration
Reports
Help
Hello admin
Log out
Home » Administration » CCIS
Climate data permissions
For all selected fields of the weather data you get new view permissions per date range (daily, monthly) etc. .
Fields
Average max temperature °C
Average min temperature °C
Average precipitation amount mm
Average sea level pressure hPa
Average mean temperature °C
CC [octas]
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CSDI [d]
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ID [d]
PP [hPa]

Status of work: with respect to “drought”

- The CCIS addresses climate and drought information needs by sectors
- Single voice policy: Using a consistent data and indices set that different sectors can draw from for drought documentation and adaptation planning

- The CCIS is a good instrument to document and monitor droughts

Conclusion

- BMKG information basis on historical climate data expanded significantly
- Standard climate information indices for drought and adaptation to climate change will be consistently available and linked to sectoral needs
- Easy access and use
- Easily extendable in technical and content based regard

Thank you very much

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Conclusion (cont.)

How can we comprehensively monitor and characterize the magnitude, spatial extents, trends, and duration of drought for areas of interest in a timely manner?

- Drought relevant indices in the CCIS document
- Trends Maps and Time Series
- Walter Diagram with aridity

What work is being done to create comprehensive and integrated drought monitoring systems? What indicators (climate, water soil, crop, and / or economic variables) are selected for monitoring each type of drought and why?

- The drought relevant climate indices allows documentation of drought and international comparability
- Matching supply and demand by e. g. FGD
- Modular design of the CCIS provide a basis to extend the CCIS where needed

Conclusion (cont.)

In order to better respond to the information needs of stakeholders, can these drought information/ early warning systems include warning of the potential impact on the economy, households, or the environment?

- For this the mandate of the information supplier has to be clarified. In Indonesia economy, households and environment is not the responsibility of the weather service.

What are the requirements for successful drought information/early warning systems?

- Addressing concrete user demands (seam less climate service) and have repetitive exchange between the stakeholders e. g. by FGD

Trend of Onset of Dry Season ONDS (1985-2010)