Joint Dutch-Indonesian initiative to rescue, digitize and exploit historical climate data from Indonesia

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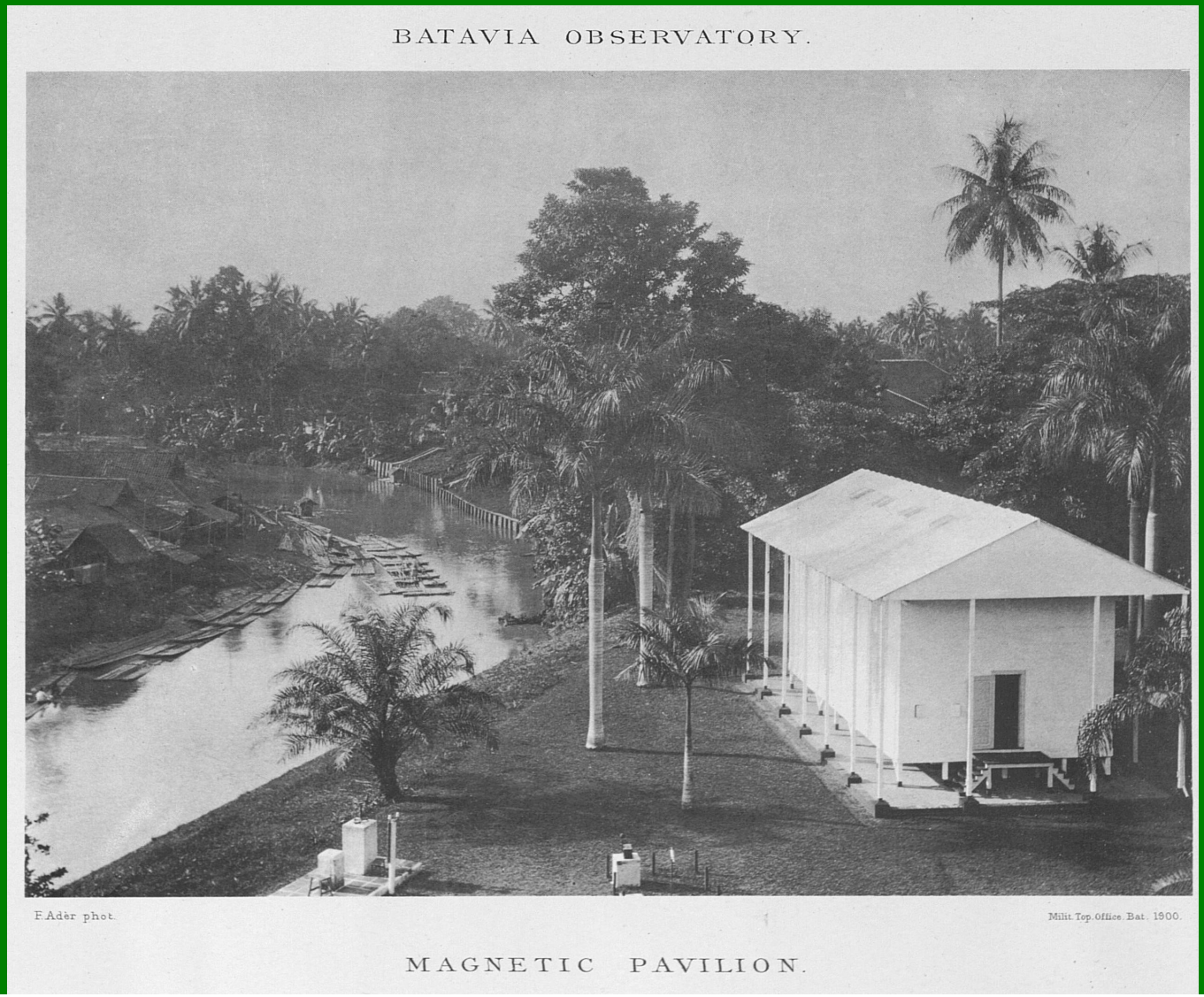
2nd ACRE workshop

Queensland, Australia, 1-3 April 2009

KNMI

Contents

Dutch presence in Indonesia



1. Background of the initiative

1999 MoU BMGK-KNMI

MEMORANDUM OF UNDERSTANDING

BETWEEN

THE ROYAL NETHERLANDS METEOROLOGICAL INSTITUTE

AND

METEOROLOGICAL AND GEOPHYSICAL AGENCY
OF THE REPUBLIC OF INDONESIA

CONCERNING

COOPERATION IN THE FIELD OF METEOROLOGY

1999 MoU BMGK-KNMI

ARTICLE 2

AREAS OF COOPERATION

The areas of cooperation are the followings :

- Maritime safety;
- Climate research, and recovery of old data series;
- Training in the field of Meteorology;
- Cooperation in contributions to WMO (GAW a.o);
- Availability of ECMWF products;
- Availability of ocean observations;
- Creating of data bases;
- Calibration and standards of observations quality;
- Application of Doppler radar systems;
- Recovery of historical information on the former Netherlands Indies Meteorological Service;
- Joint research Monsoon Experiment;
- Joint Work with ECMWF on Seasonal Forecasting in Particular in EL Nino;

This list is not exhaustive, and can be extended as agreed by the Parties.

1. Background of the initiative

2009 Declaration of intent BMKG – KNMI

BMKG

DECLARATION OF INTENT

Concerning cooperation on the recovery of historical climate data
between

Badan Meteorologi Klimatologi dan Geofisika (BMKG)
and
the Royal Netherlands Meteorological Institute (KNMI)

1. Background of the initiative

2009 Declaration of intent BMKG – KNMI

2. Aim of the declaration

BMKG and KNMI aim to work together in a joint project under the MOU on the digitization and application of historic and recent Indonesian climate data.

3. Historic climate data project

In the framework of this project high resolution climate data will be made available for research and applications to better understand, anticipate and adapt to climate change in the light of securing sustainable development (see annex 2).

1. Background of the initiative

2009 Declaration of intent BMKG – KNMI

Signed in Jakarta on 22 January, 2009.

Executive Secretary
Badan Meteorologi Klimatologi dan
Geofisika

Dr.Andi Eka Sakya,M.Eng

Vice Minister for Transport,
Public Works and Water Management
The Kingdom of the Netherlands

Mrs. J.C. Huizinga-Heringa

Project structure

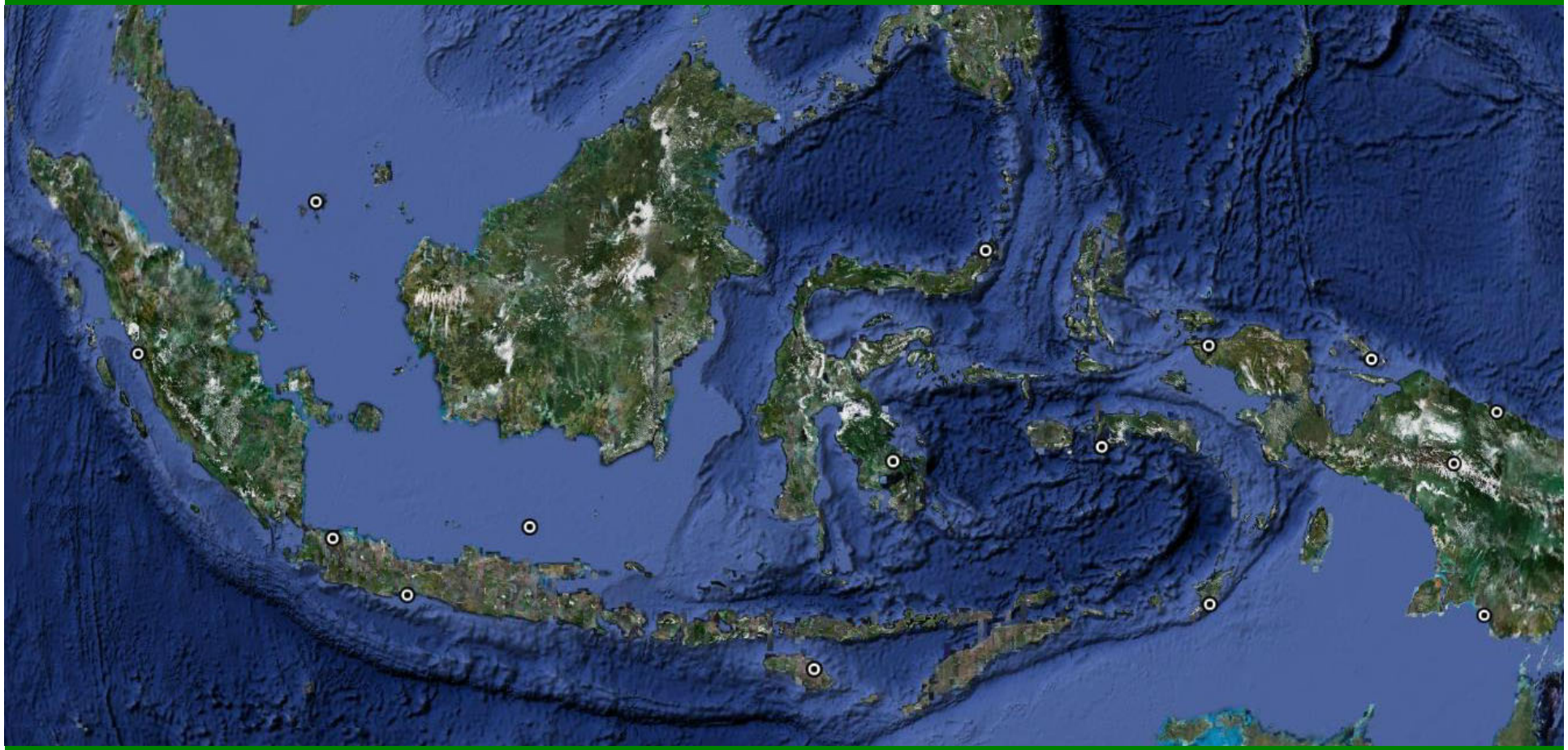
(A) An international workshop in the framework of the World Meteorological Organization's "DARE" (DAta REscue) and "Climate Extremes" programs. To be held in the second half of 2009 in Indonesia.

(B) Digitization of historical data from Indonesia at BMKG. Starting January 2010 and taking two years, until fall 2011.

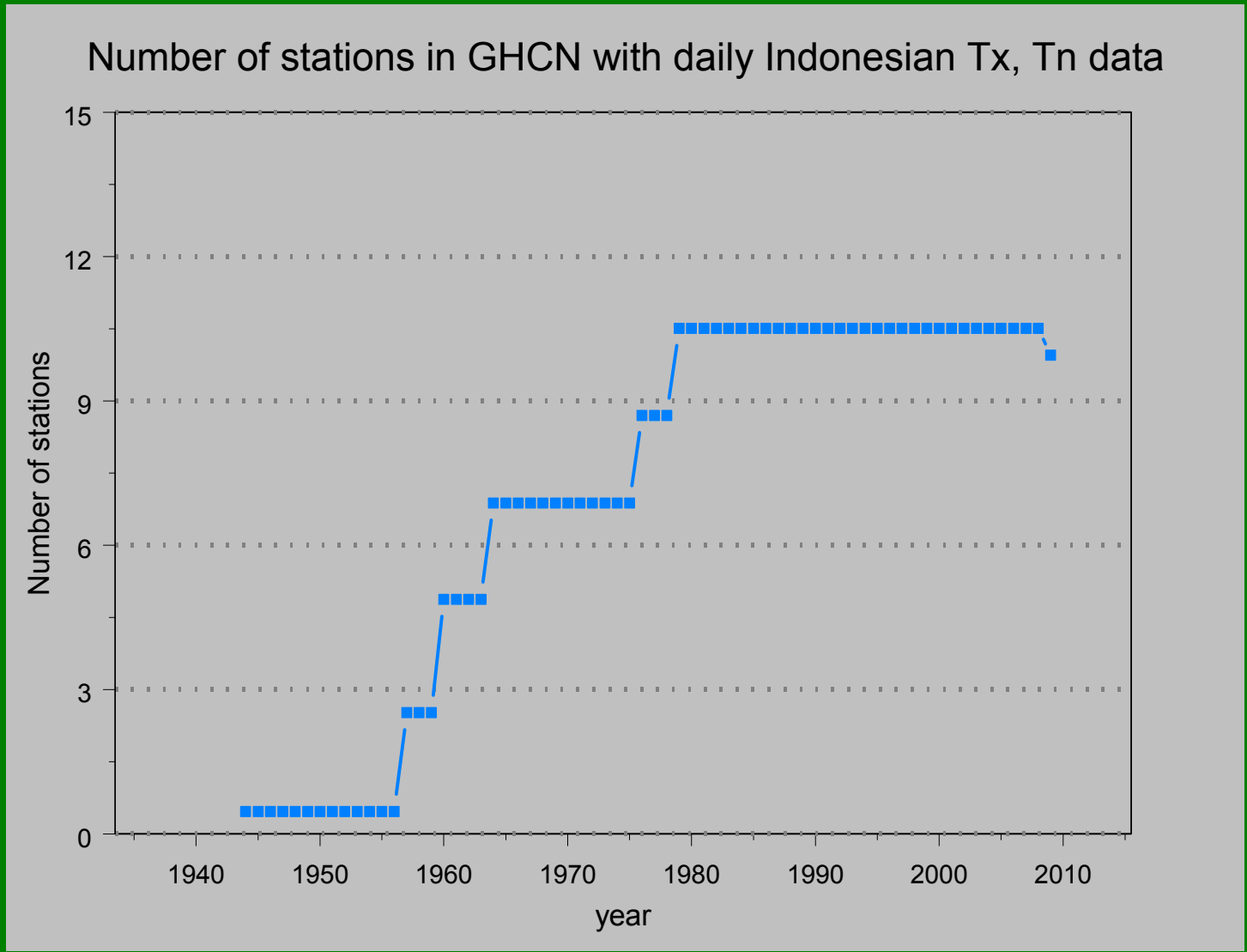
(C) Exchange of experts between KNMI and BMKG.

(D) A five day regional Indonesian workshop by the finishing of the project, to be expected in the second half of 2011, to advertise the results and explore regional applications in development.

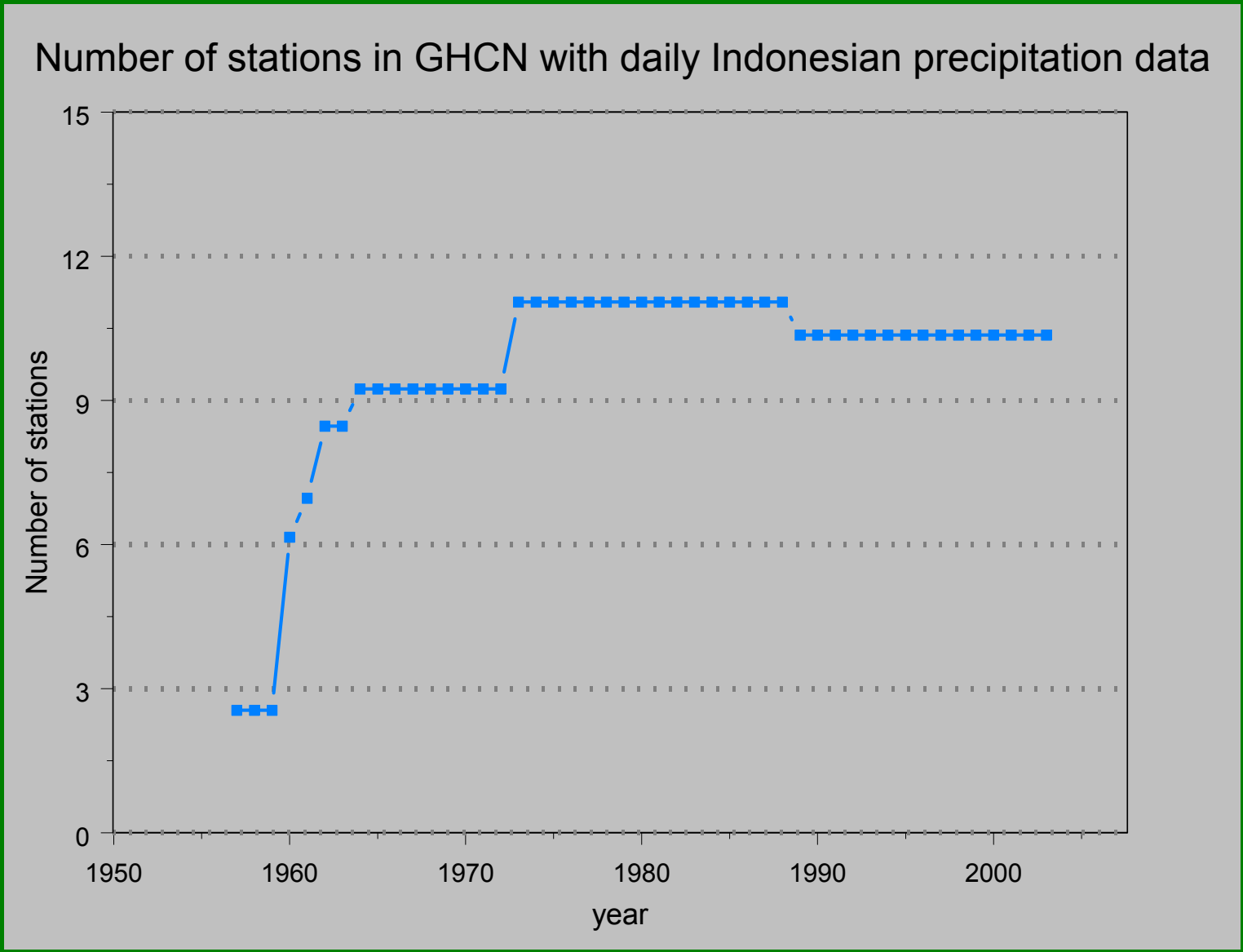
Daily series in GHCN



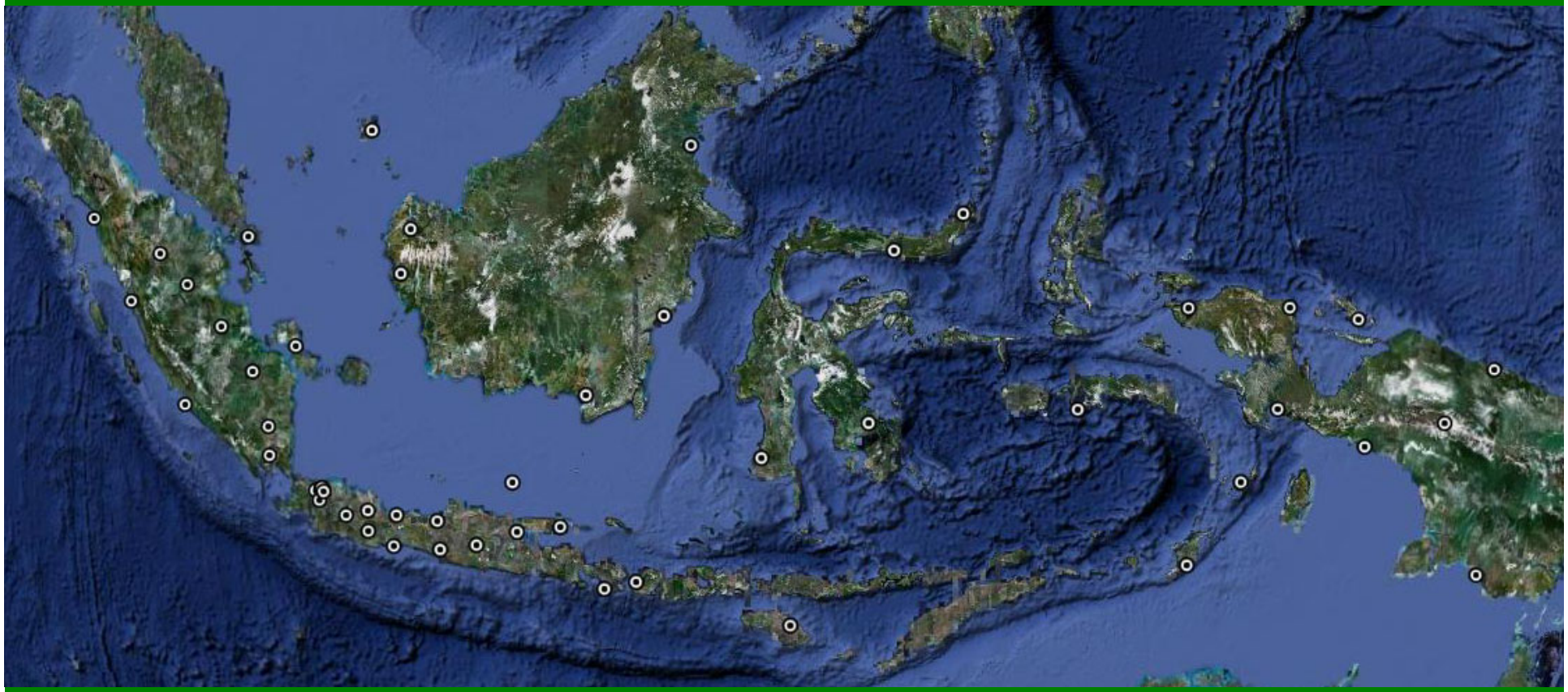
Daily temperature



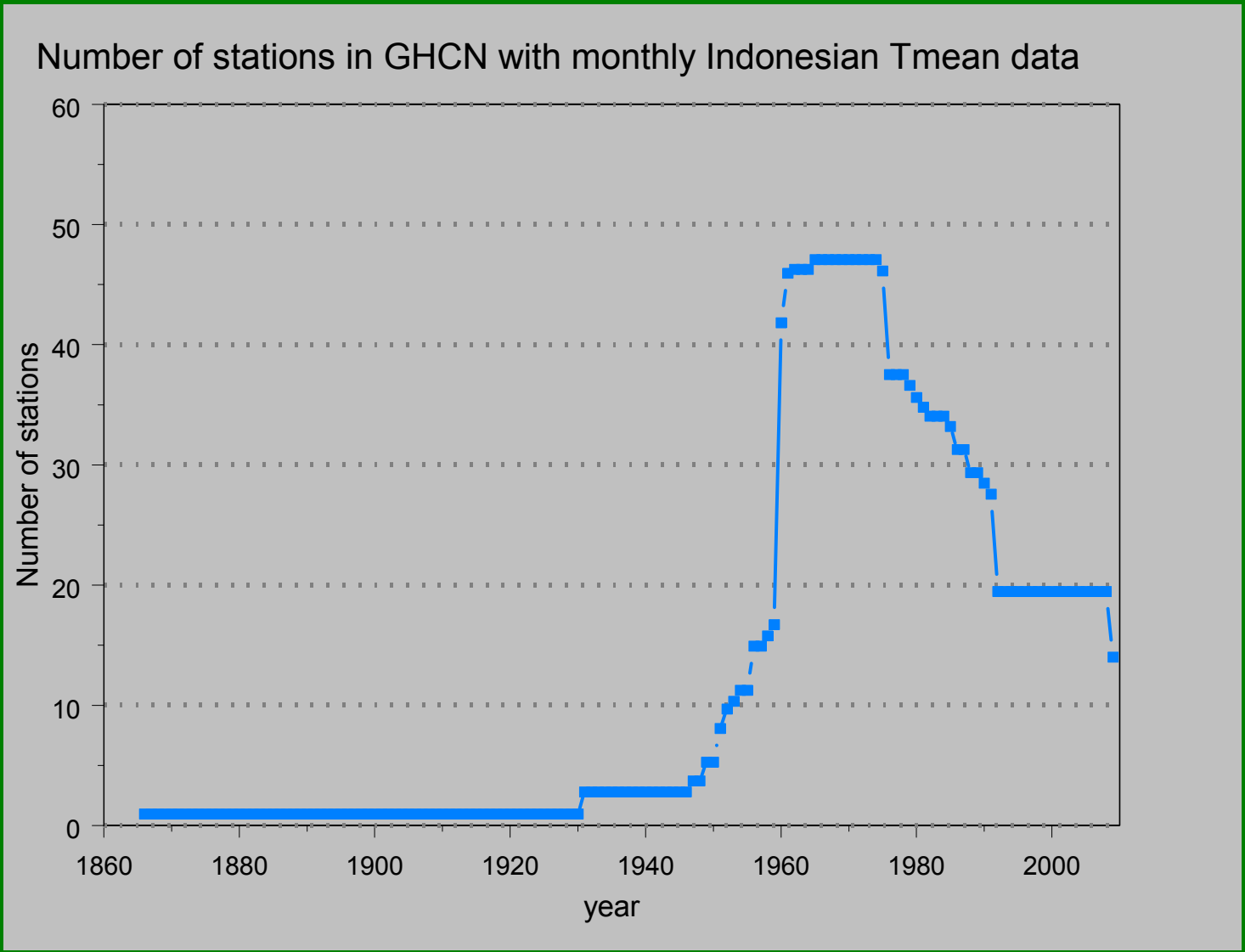
Daily precipitation



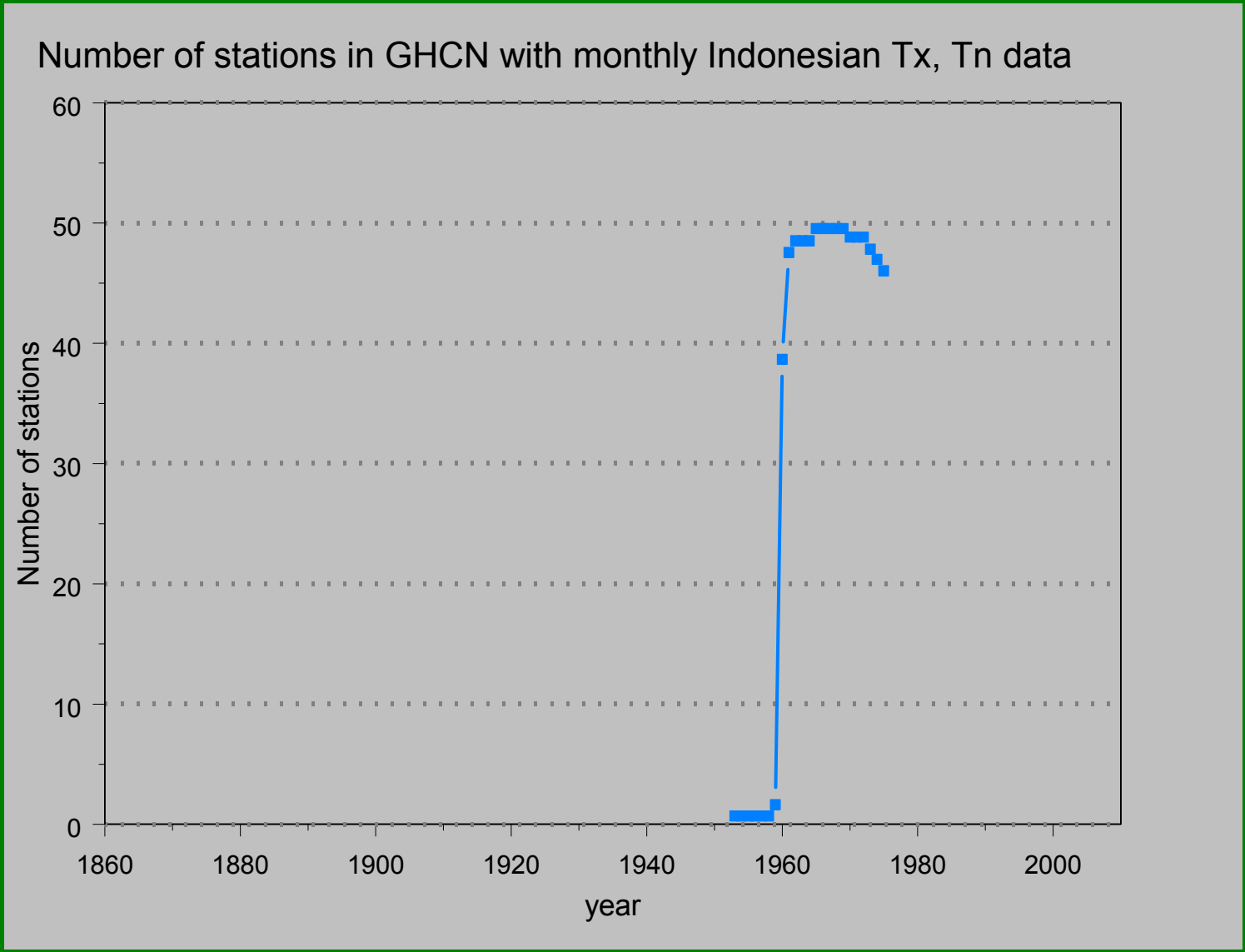
Monthly temperature series in GHCN



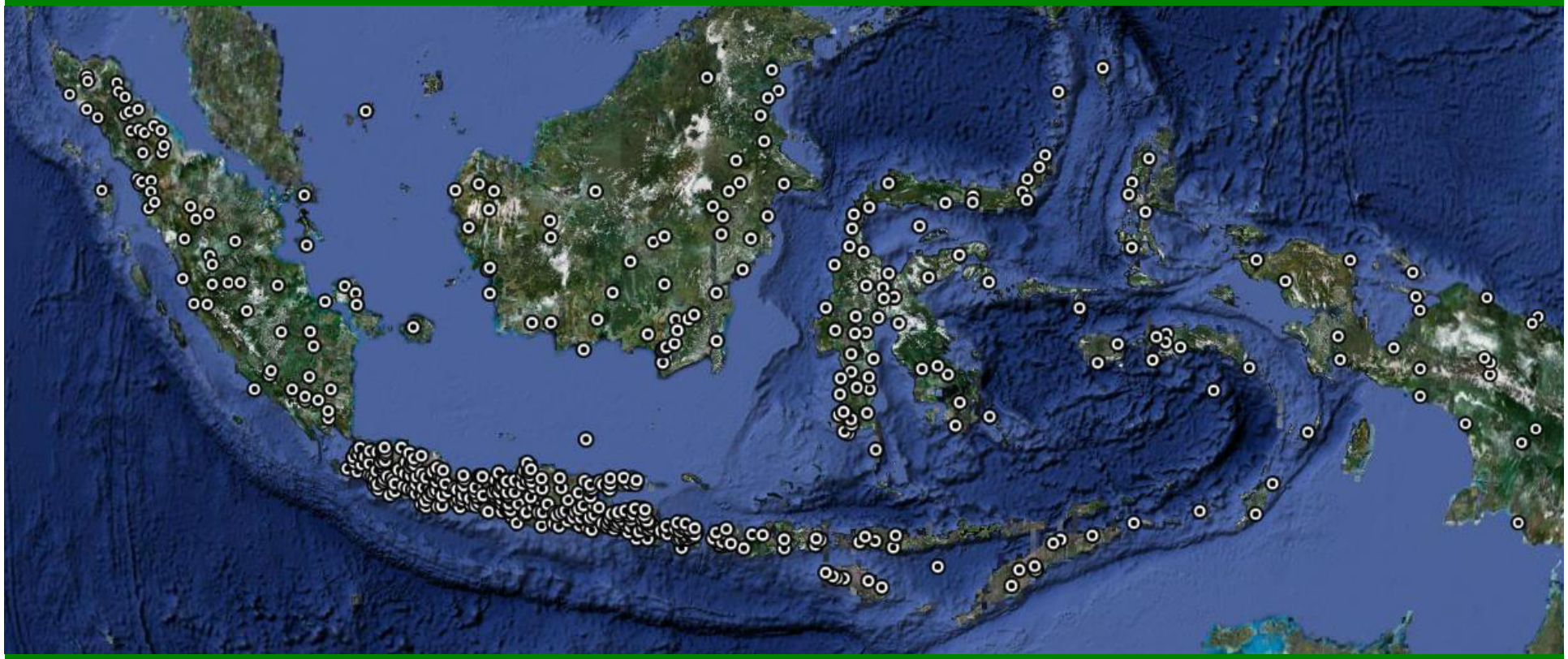
Monthly temperature



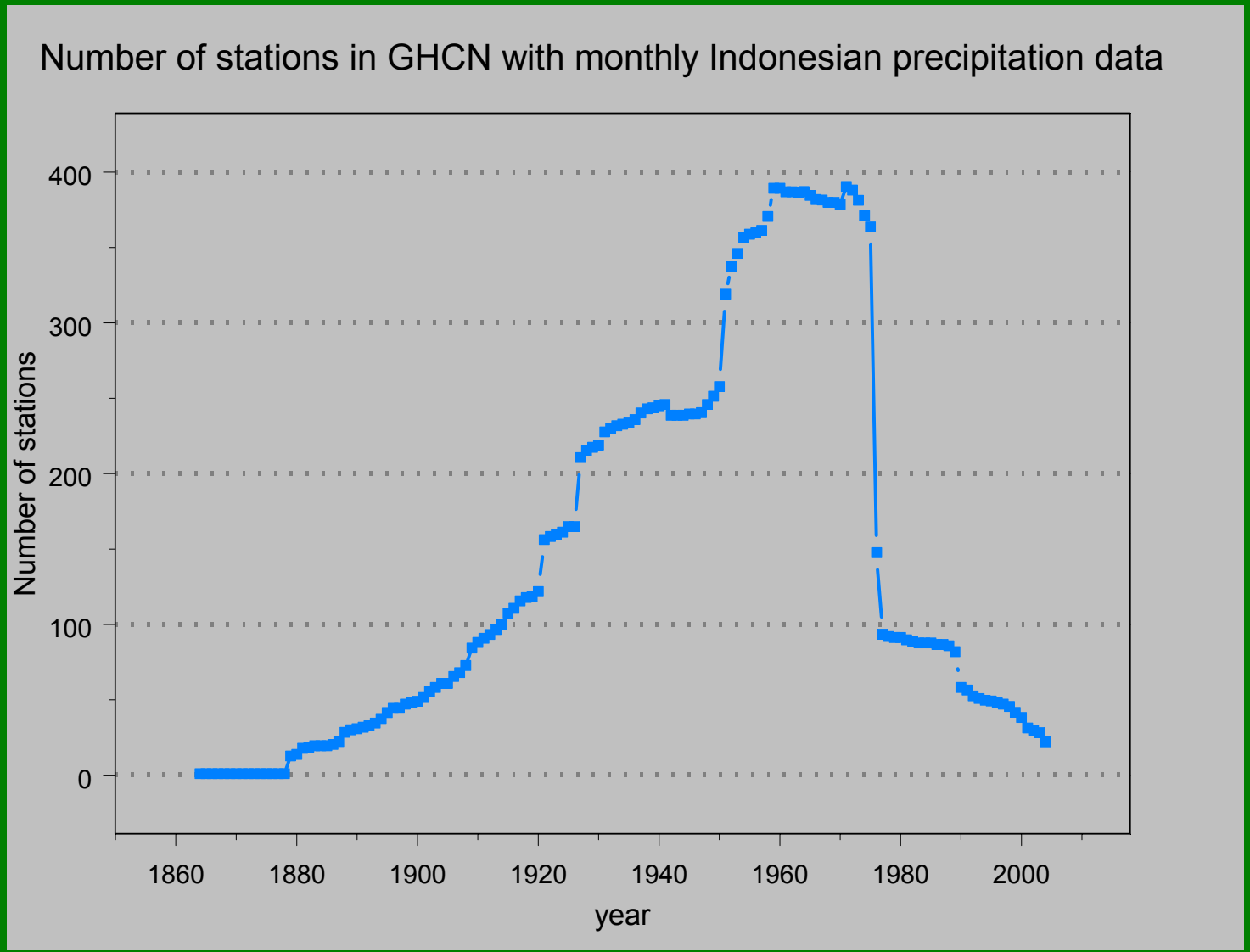
Monthly temperature



Monthly precipitation series in GHCN

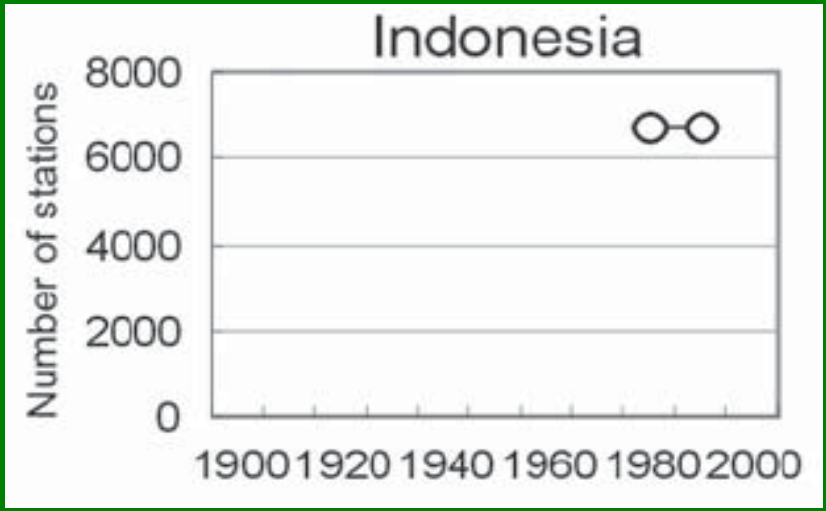


Monthly precipitation totals

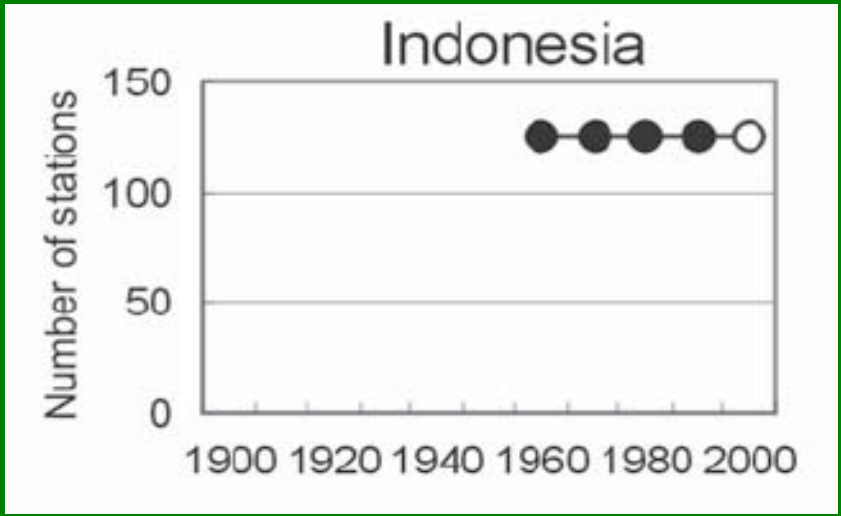


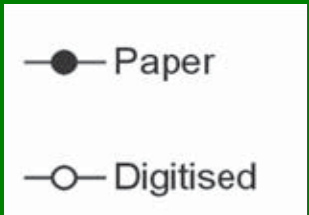
Data availability according to BAMS paper

Daily precipitation



Daily temperature

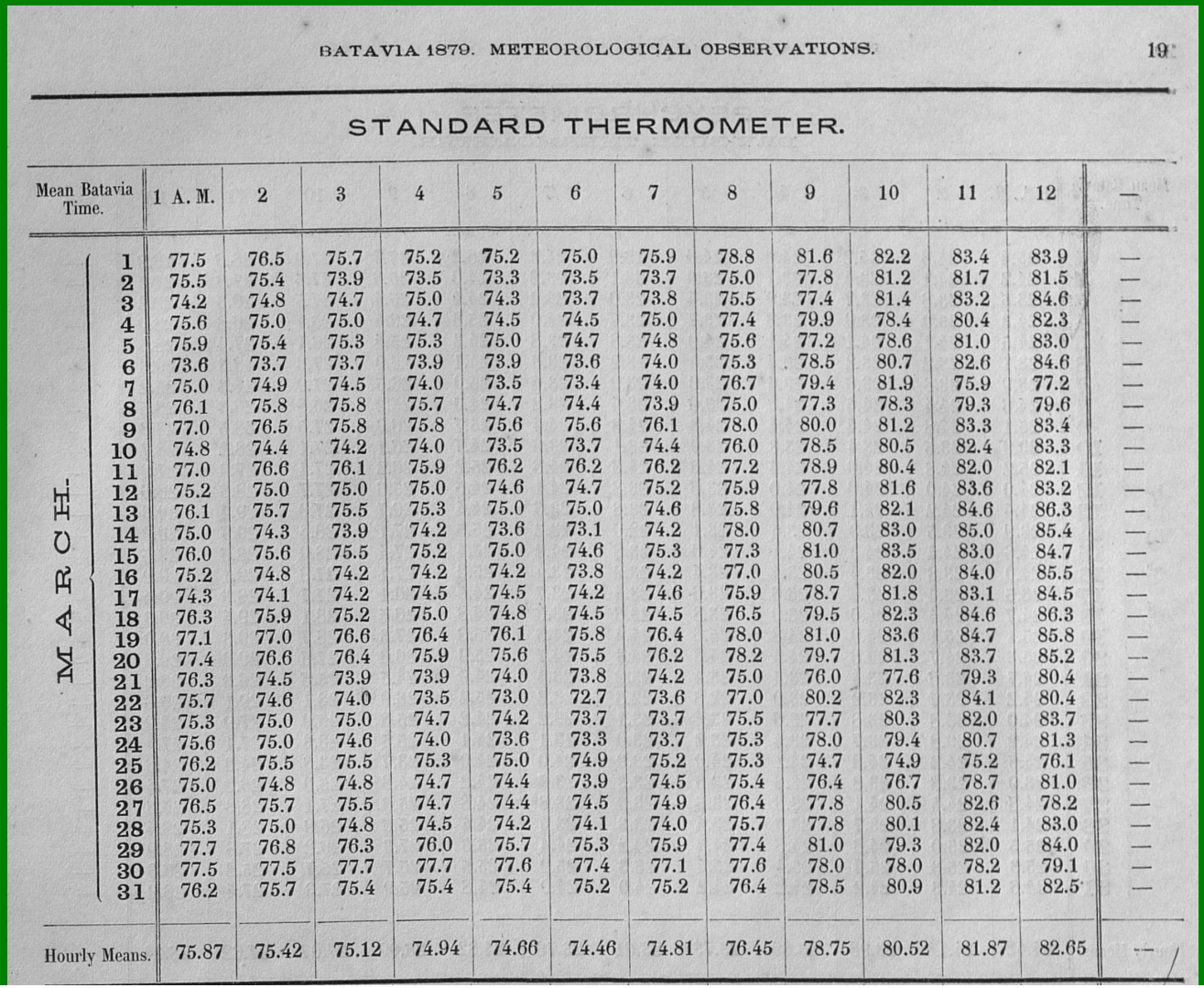




Data Rescue in the Southeast Asia and South Pacific Region: Challenges and Opportunities, Page et al., BAMS, 2004

Data available at KNMI

(A) Batavia/Jakarta yearbooks 1866-1970



BATAVIA 1879. METEOROLOGICAL OBSERVATIONS. 19

STANDARD THERMOMETER.

Mean Batavia Time.		1 A. M.	2	3	4	5	6	7	8	9	10	11	12	—
MARCH.	1	77.5	76.5	75.7	75.2	75.2	75.0	75.9	78.8	81.6	82.2	83.4	83.9	—
	2	75.5	75.4	73.9	73.5	73.3	73.5	73.7	75.0	77.8	81.2	81.7	81.5	—
	3	74.2	74.8	74.7	75.0	74.3	73.7	73.8	75.5	77.4	81.4	83.2	84.6	—
	4	75.6	75.0	75.0	74.7	74.5	74.5	75.0	77.4	79.9	78.4	80.4	82.3	—
	5	75.9	75.4	75.3	75.3	75.0	74.7	74.8	75.6	77.2	78.6	81.0	83.0	—
	6	73.6	73.7	73.7	73.9	73.9	73.6	74.0	75.3	78.5	80.7	82.6	84.6	—
	7	75.0	74.9	74.5	74.0	73.5	73.4	74.0	76.7	79.4	81.9	75.9	77.2	—
	8	76.1	75.8	75.8	75.7	74.7	74.4	73.9	75.0	77.3	78.3	79.3	79.6	—
	9	77.0	76.5	75.8	75.8	75.6	75.6	76.1	78.0	80.0	81.2	83.3	83.4	—
	10	74.8	74.4	74.2	74.0	73.5	73.7	74.4	76.0	78.5	80.5	82.4	83.3	—
	11	77.0	76.6	76.1	75.9	76.2	76.2	76.2	77.2	78.9	80.4	82.0	82.1	—
	12	75.2	75.0	75.0	75.0	74.6	74.7	75.2	75.9	77.8	81.6	83.6	83.2	—
	13	76.1	75.7	75.5	75.3	75.0	75.0	74.6	75.8	79.6	82.1	84.6	86.3	—
	14	75.0	74.3	73.9	74.2	73.6	73.1	74.2	78.0	80.7	83.0	85.0	85.4	—
	15	76.0	75.6	75.5	75.2	75.0	74.6	75.3	77.3	81.0	83.5	83.0	84.7	—
	16	75.2	74.8	74.2	74.2	74.2	73.8	74.2	77.0	80.5	82.0	84.0	85.5	—
	17	74.3	74.1	74.2	74.5	74.5	74.2	74.6	75.9	78.7	81.8	83.1	84.5	—
	18	76.3	75.9	75.2	75.0	74.8	74.5	74.5	76.5	79.5	82.3	84.6	86.3	—
	19	77.1	77.0	76.6	76.4	76.1	75.8	76.4	78.0	81.0	83.6	84.7	85.8	—
	20	77.4	76.6	76.4	75.9	75.6	75.5	76.2	78.2	79.7	81.3	83.7	85.2	—
	21	76.3	74.5	73.9	73.9	74.0	73.8	74.2	75.0	76.0	77.6	79.3	80.4	—
	22	75.7	74.6	74.0	73.5	73.0	72.7	73.6	77.0	80.2	82.3	84.1	80.4	—
	23	75.3	75.0	75.0	74.7	74.2	73.7	73.7	75.5	77.7	80.3	82.0	83.7	—
	24	75.6	75.0	74.6	74.0	73.6	73.3	73.7	75.3	78.0	79.4	80.7	81.3	—
	25	76.2	75.5	75.5	75.3	75.0	74.9	75.2	75.3	74.7	74.9	75.2	76.1	—
	26	75.0	74.8	74.8	74.7	74.4	73.9	74.5	75.4	76.4	76.7	78.7	81.0	—
	27	76.5	75.7	75.5	74.7	74.4	74.5	74.9	76.4	77.8	80.5	82.6	78.2	—
	28	75.3	75.0	74.8	74.5	74.2	74.1	74.0	75.7	77.8	80.1	82.4	83.0	—
	29	77.7	76.8	76.3	76.0	75.7	75.3	75.9	77.4	81.0	79.3	82.0	84.0	—
	30	77.5	77.5	77.7	77.7	77.6	77.4	77.1	77.6	78.0	78.0	78.2	79.1	—
	31	76.2	75.7	75.4	75.4	75.4	75.2	75.2	76.4	78.5	80.9	81.2	82.5	—
Hourly Means.		75.87	75.42	75.12	74.94	74.66	74.46	74.81	76.45	78.75	80.52	81.87	82.65	—

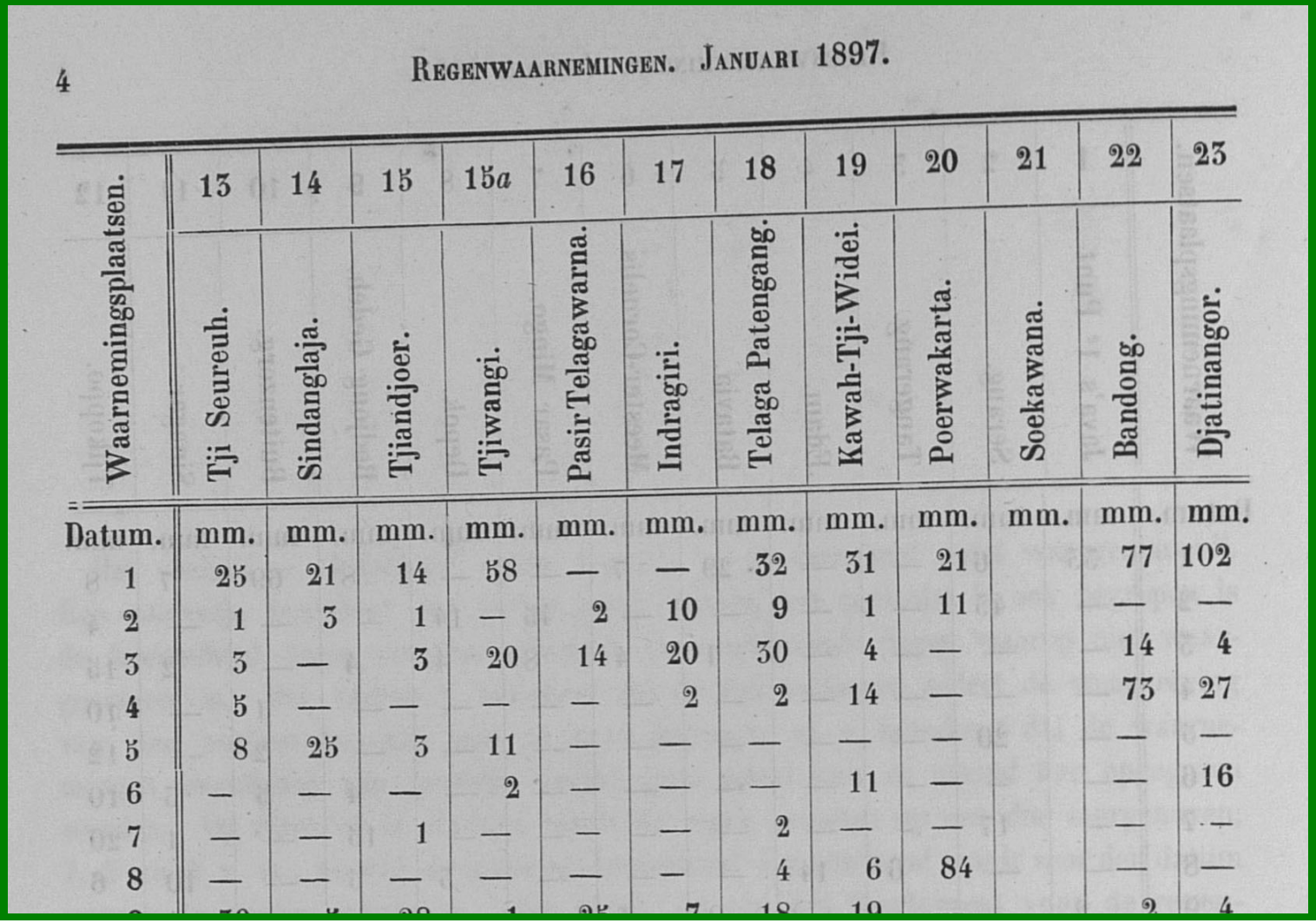
Data available at KNMI

(A) Batavia/Jakarta yearbooks 1866-1970

- Hourly observations of air temperature, air pressure, wind direction and speed, cloudiness, humidity, etc.
- About 1 million observations (~7 elements/observation)
- Recently scanned
- To be digitized in the project (~ 6 man-year work)

Data available at KNMI

(B) Precipitation yearbooks 1879-1965

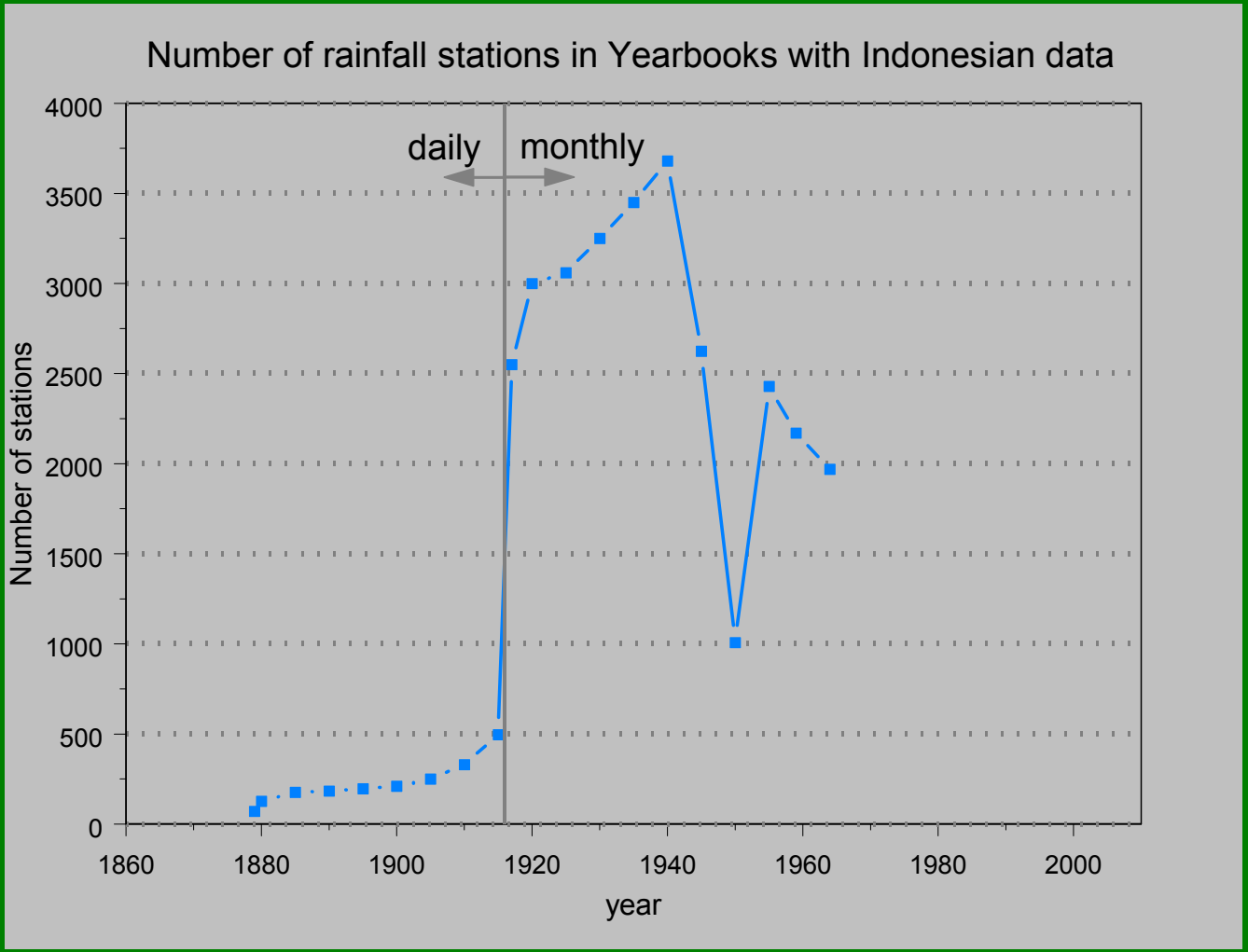


4 REGENWAARNEMINGEN. JANUARI 1897.

Waarnemingsplaatsen.	13	14	15	15a	16	17	18	19	20	21	22	23
	Tji Seureuh.	Sindanglaja.	Tjiandjoer.	Tjiwangi.	Pasir Telagawarna.	Indragiri.	Telaga Patengang.	Kawah-Tji-Widei.	Poerwakarta.	Soekawana.	Bandong.	Djatinangor.
Datum.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
1	25	21	14	58	—	—	32	31	21		77	102
2	1	3	1	—	2	10	9	1	11		—	—
3	3	—	3	20	14	20	30	4	—		14	4
4	5	—	—	—	—	2	2	14	—		73	27
5	8	25	3	11	—	—	—	—	—		—	—
6	—	—	—	2	—	—	—	11	—		—	16
7	—	—	1	—	—	—	2	—	—		—	—
8	—	—	—	—	—	—	4	6	84		—	—

Data available at KNMI

(B) Precipitation yearbooks 1879-1965



Data available at KNMI

B. Precipitation yearbooks 1879-1965

- About 4 million daily observations
- About 3.5 million monthly observation
- Recently scanned
- To be digitized in the project (~ 4 + 4 man-year work)

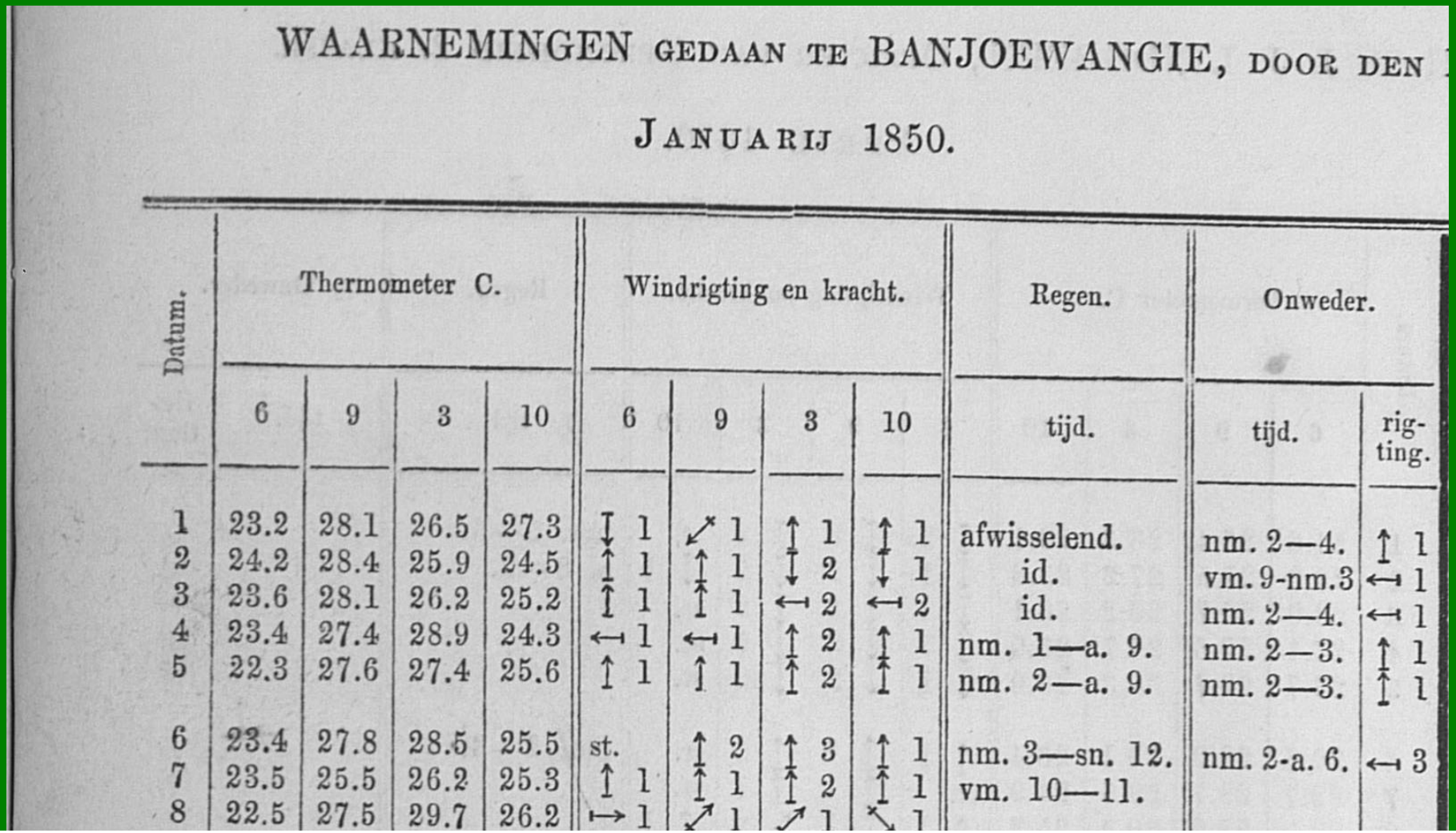
Data available at KNMI

C. Secondary stations 1910-1973

- Monthly and annual observation of various stations and elements
- About 0.5 million observations (3 elements/observation)
- Scanned images available
- To be digitized in the project (~ 2.5 man-year work)

Data available at KNMI

D. Data in KNMI yearbooks 1850-1900



WAARNEMINGEN GEDAAN TE BANJOEWANGIE, DOOR DEN

JANUARIJ 1850.

Datum.	Thermometer C.				Windrigting en kracht.				Regen.	Onweder.	
	6	9	3	10	6	9	3	10	tijd.	tijd.	rig-ting.
1	23.2	28.1	26.5	27.3	↓ 1	↙ 1	↑ 1	↑ 1	afwisselend.	nm. 2—4.	↑ 1
2	24.2	28.4	25.9	24.5	↑ 1	↑ 1	↓ 2	↓ 1	id.	vm. 9-nm. 3	← 1
3	23.6	28.1	26.2	25.2	↑ 1	↑ 1	← 2	← 2	id.	nm. 2—4.	← 1
4	23.4	27.4	28.9	24.3	← 1	← 1	↑ 2	↑ 1	nm. 1—a. 9.	nm. 2—3.	↑ 1
5	22.3	27.6	27.4	25.6	↑ 1	↑ 1	↑ 2	↑ 1	nm. 2—a. 9.	nm. 2—3.	↑ 1
6	23.4	27.8	28.5	25.5	st.	↑ 2	↑ 3	↑ 1	nm. 3—sn. 12.	nm. 2-a. 6.	← 3
7	23.5	25.5	26.2	25.3	↑ 1	↑ 1	↑ 2	↑ 1	vm. 10—11.		
8	22.5	27.5	29.7	26.2	→ 1	↗ 1	↗ 1	↘ 1			

Data available at KNMI

D. Data in KNMI yearbooks 1850-1900

- (Sub)-daily of various of various stations and elements
- About 51 station years (63.000 observations)
- Scanned
- Already digitized at KNMI

Developments and plans

1. Japan (Tokyo Metropolitan University) is currently digitizing 1901-1916 daily precipitation
2. (1) will probably be followed by 1917-1957 monthly precipitation
3. KNMI will request BMKG to make an inventory of their digital and hardcopy climate data
4. When the inventory is available, KNMI en BMGK will fine-tune the current project proposal