



BMKG SPECIAL TRAINING CALLED CLIMATE FIELD SCHOOL

BARBADOS, 30 October 2017

Herizal
BMKG Education and Training Center



pusdiklat@bmkg.go.id



OUTLINES

A. Introduction

B. Climate Field School Concept

C. Climate Field School Delivery

D. Closing





INTRODUCTION





AGRICULTURE in INDONESIA (1)

1

NATIONAL ECONOMIC FOUNDATION

2

JOB OPPORTUNITY : 55 %

3

ECONOMIC CONTRIBUTION : 20 %



AGRICULTURE (2)

1

SENSITIVE TO CLIMATE CHANGE



2

VULNERABLE TO CLIMATE CHANGE



3

CLIMATE INFORMATION ILLITERACY



CLIMATE FIELD SCHOOL



CLIMATE FIELD SCHOOL





CLIMATE FIELD SCHOOL CONCEPT





CLIMATE ADAPTATION

- **Seeds;**
- **Soil;**
- **Irrigation;**

manageable

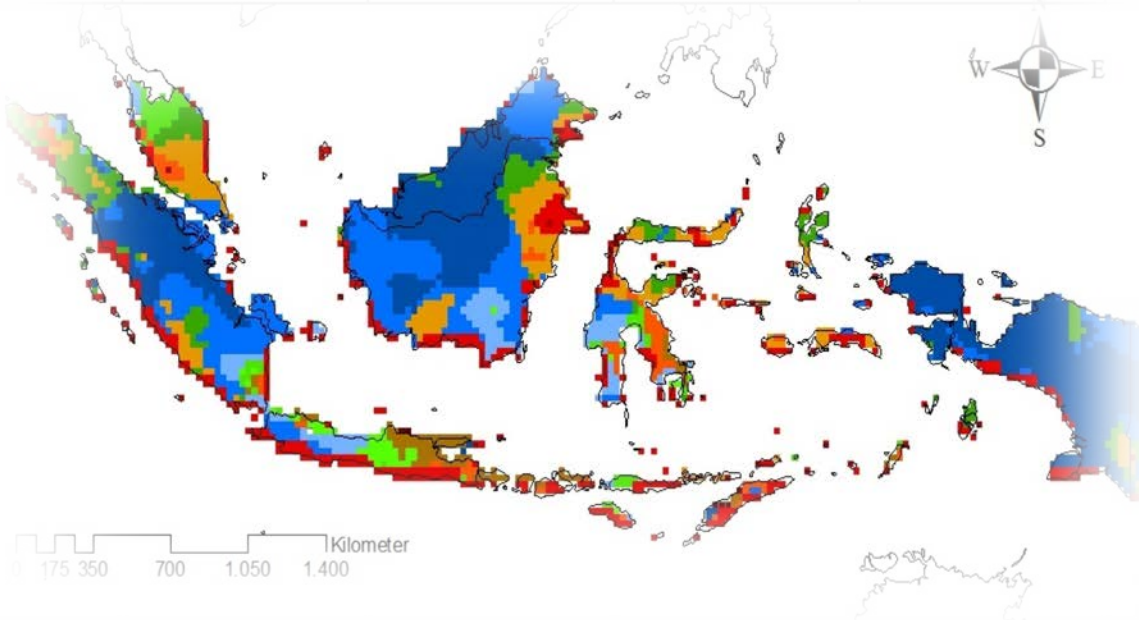
- **Climate**

unmanageable





CLIMATE ADAPTATION PROBLEM

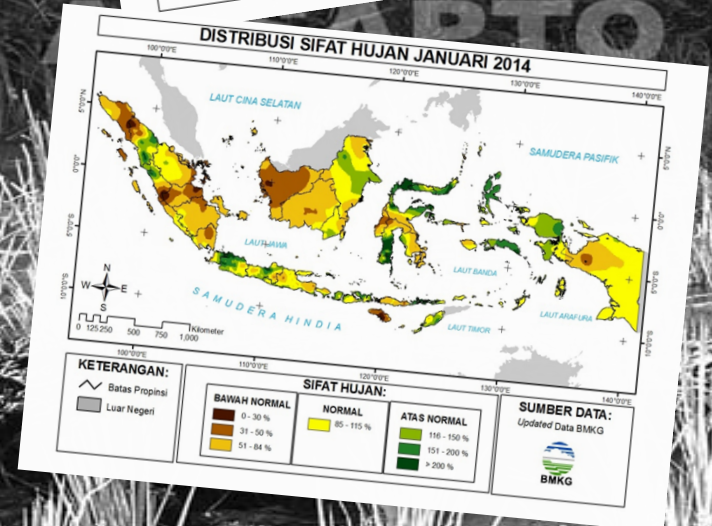
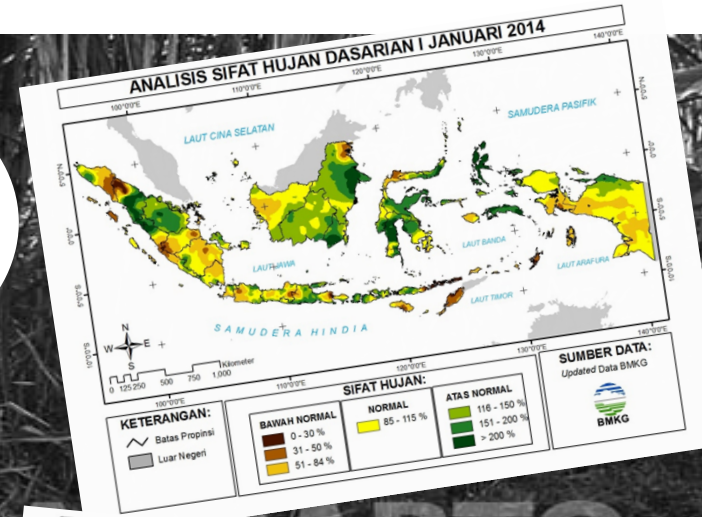


farmer ability in understanding
climate information is very limited





TRANSLATE SCIENTIFIC TO FARMER LANGUAGE





ROLE OF FIELD FACILITATORS





CONCEPTUAL OF CFS



LEVEL 1 *TRAINING OF TRAINERS*

Participants : Decision maker (local government)
Time Period : 4 days
Partner : BMKG



LEVEL 2 *TRAINING OF TRAINERS*

Participants : Field Facilitators
Time Period : 4 days
Partner : BMKG, local government



LEVEL 3 *FIELD PROGRAM LAPANGAN*

Participant : Kelompok tani unggulan
Time Period : 4 months (12 x meeting)
Partner : BMKG, local government, field facilitators





CLIMATE FIELD SCHOOL DELIVERY





CFS MODULES

1

MODULE 1 : Weather and Climate Elements



2

MODULE 2 : Basic Weather Instruments



3

MODULE 3 : Rain Making Process

4

MODULE 4 : Climate Information



5

MODUL 5 : Climate Extremes





WEATHER AND CLIMATE ELEMENTS

Temperature

Evaporation

Rain

Humidity

Salinity

Star

Moon

Flood

Sun Shine Duration

Tide

Wind

Drought

Fog

Cloud Cover



WEATHER AND CLIMATE ELEMENTS

Weather / Climate Elements	Non Weather / Climate Elements





WEATHER AND CLIMATE STATEMENTS

The current air temperature in Jakarta is 32 C

Rain season in Java is usually indicated by persistent westerly wind

Air temperature in Jakarta is warmer than air temperature in Bogor

The amount of rainfall measured this morning is 25 mm

Wet season in Central Java usually begins in October

Today humidity in Tangerang reaches 98%

This afternoon wind speed reaches 25 knot

Drought in some places in Java are caused by a long dry season

January is peak of rainy season in Java

Some cities in Central Java recorded extreme rainfall yesterday



WEATHER AND CLIMATE STATEMENTS

Weather Statement	Climate Statement





WEATHER AND CLIMATE ELEMENTS AND STATEMENTS

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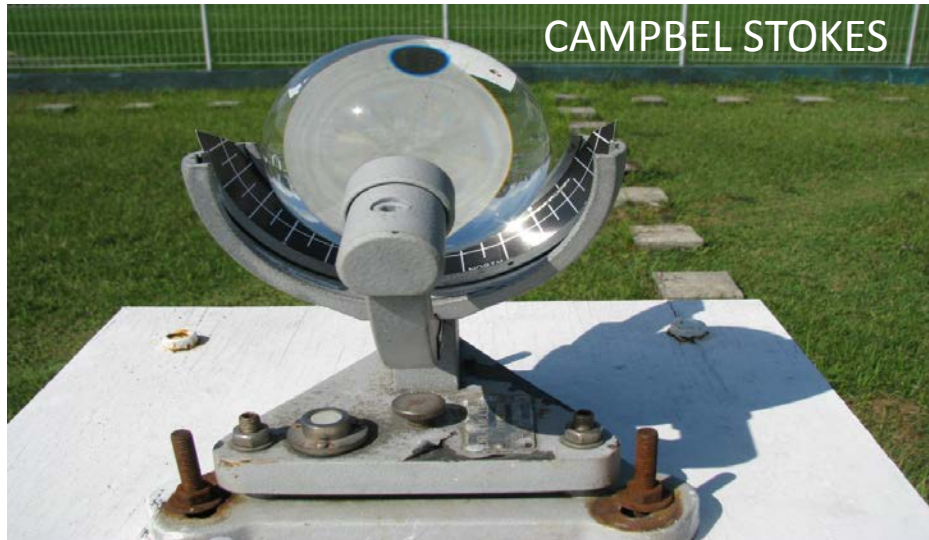


WEATHER AND CLIMATE STATEMENTS

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BASIC WEATHER INSTRUMENTS



Ombrometer and Alternative Instrument





CLIMATE INFORMATION

Dry Season Onset (DSO):

Accumulative rain recorded in one decad (10 days) < 50 mm, followed by next two decads

Wet Season Onset (WSO) :

Accumulative rain recorded in one decad (10 days) ≥ 50 mm, followed by next two decads

Decads :

One month is divided to be three decads, namely :

- a. Decad I : date 1 to 10.
- b. Decad II : date 11 to 20.
- c. Decad III : date 21 – end of day in the month.



CLIMATE INFORMATION

Statistical Properties of Rainfall Record

Normal Standard :

Average Rainfall during period 30 years, using time period defined by WMO, **(1901-1930, 1931-1960, 1961-1990, 1991-2020)**

Normal :

Average Rainfall during period 30 years using non reference time defined by WMO, for example **(1971-2000, 1976-2005, 1981-2010)**

Rata-Rata :

Average Rainfall during period at least 10 years **(1971-1980, 1976-1985, 2001-2010, dll)**

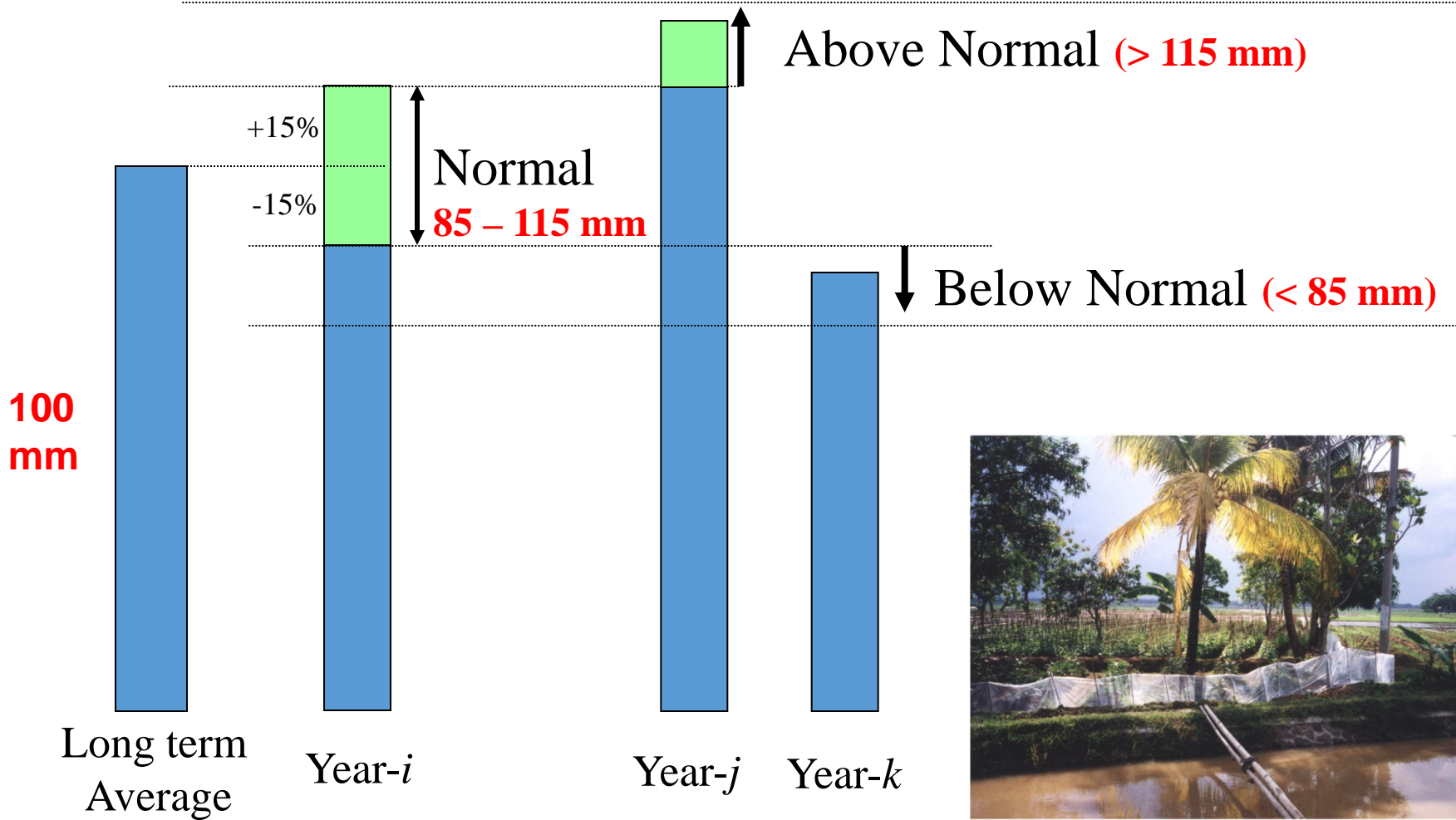
Monthly Rainfall Categories :

- Normal
- Above Normal
- Below Normal



CLIMATE INFORMATION

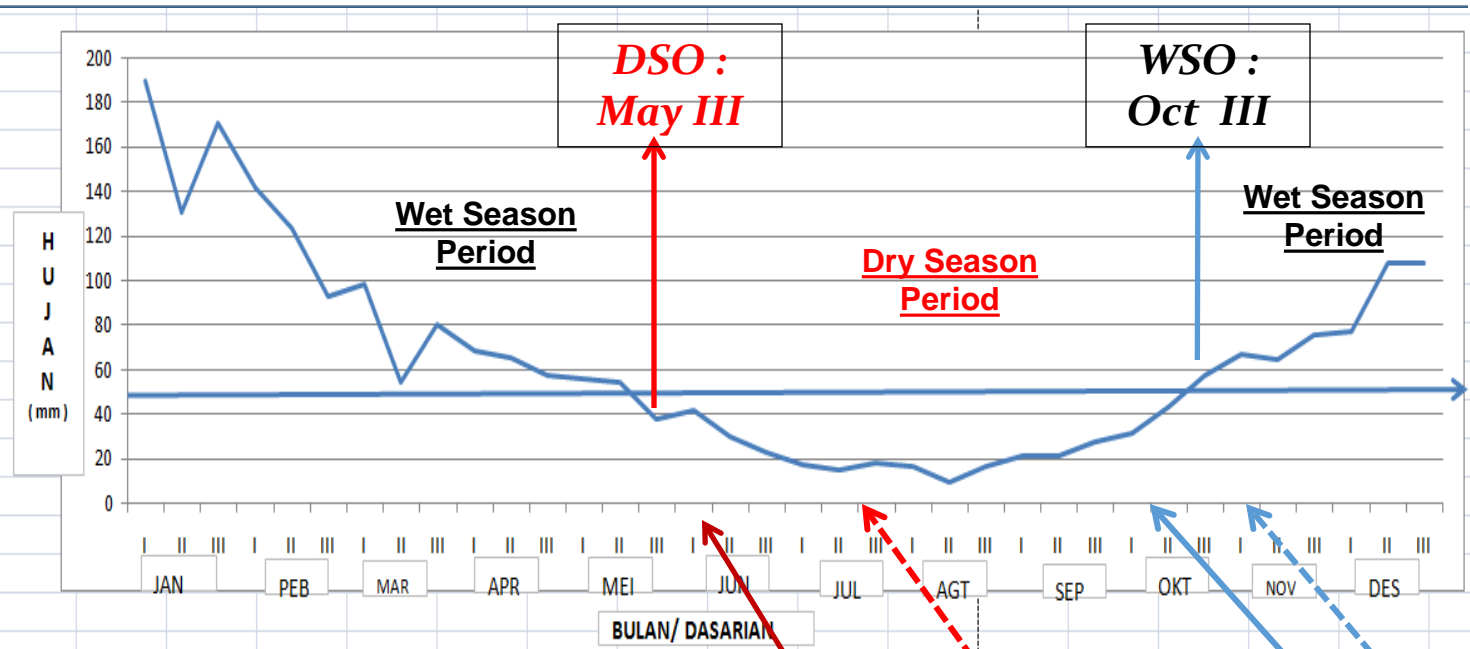
Normal, Above Normal and Below Normal





How to Decide Season Onset

Normal Rainfall Semarang : Periode 1981 – 2010



Normal :
 DSO = May III
 WSO = Oct III

Year : 2012
 DSO = June I
 (Delay 1 decad)
 AMH = Okt II
 (Advance 1 decad)

Year : 2013
 DSO = July III
 (delay 6 decad)
 WSO = Nov II
 (delay 2 decad)

TAHUN	JAN			PEB			MAR			APR			MEI			JUN			JUL			AGT			SEP			OKT			NOV			DES		
	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III	I	II				
2012	127	101	243	88	117	77	57	56	72	125	40	48	58	46	52	2	22	14	0	1	0	0	0	0	0	8	0	1	26	96	65	61	88	83	63	38
2013	160	199	99	26	136	190	59	52	37	76	138	50	41	85	34	80	166	46	36	66	22	0	26	20	3	4	1	9	40	35	28	84	50	51	163	

Monthly Rainfall Category

Rainfall data from Ungaran Station, Semarang

Year	JAN	JUN
1981	744	149
1982	818	39
1983	473	0
1984	470	83
1985	480	142
1986	429	131
1987	331	34
1988	303	106
1989	350	80
1990	873	153
1991	490	28
1992	133	56
1993	485	235
1994	790	0
1995	628	296
1996	416	58
1997	782	0
1998	208	102
1999	445	36
2000	491	124
2001	465	142
2002	437	11
2003	322	8
2004	267	10
2005	485	80
2006	593	7
2007	116	70
2008	545	31
2009	816	
2010	356	107
average	485	80
85% - 115%	412 - 557	68 - 92

YEAR	JAN	JUN
2011	375	20
2012	714	66
2013	550	159

Januari :

Year	Above Normal (AN)	Normal (N)	Below Normal (BN)
2011			
2012			
2013			

June :

Year	Above Normal (AN)	Normal (N)	Below Normal (BN)
2011			
2012			
2013			

NORMAL , JANUARY = 412 – 557
NORMAL, JUNE = 68 - 92

CLIMATE INFORMATION





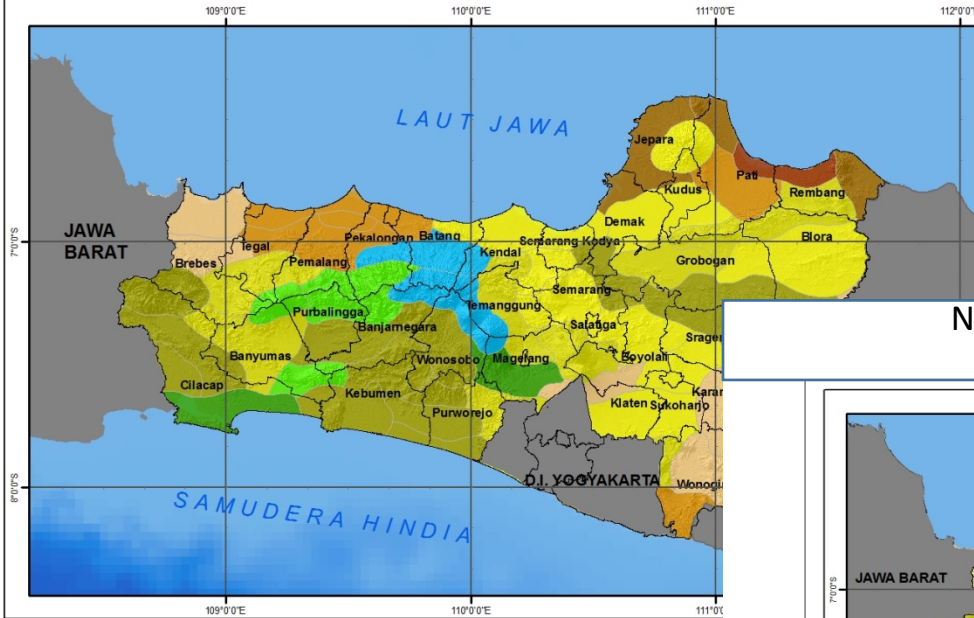
CLIMATE INFORMATION



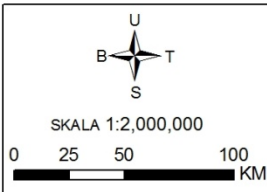
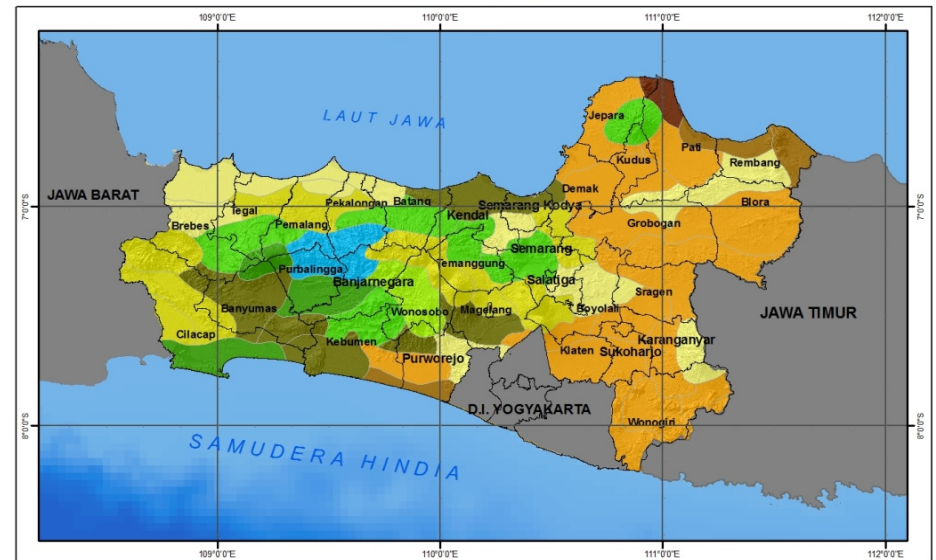


Normal Wet and Dry Season Onset

Normal Wet Season Onset (1981-2000)
at Central Java Province

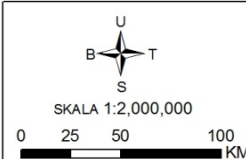


Normal Dry Season Onset (1981-2000)
at Central Java Province



Keterangan :

BATAS KABUPATEN	BATAS ZOM
AGT III	DES I
SEP I	OKT I
SEP II	OKT II
SEP III	OKT III
	NOP I
	NOP II
	NOP III



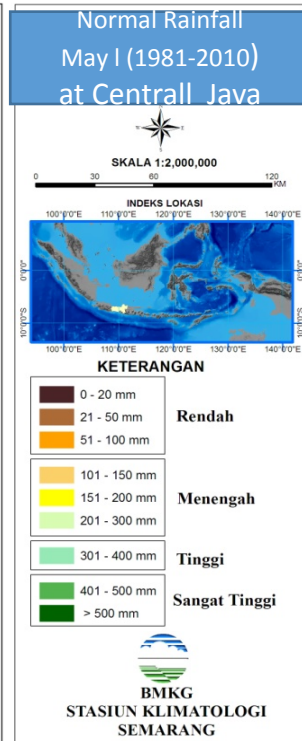
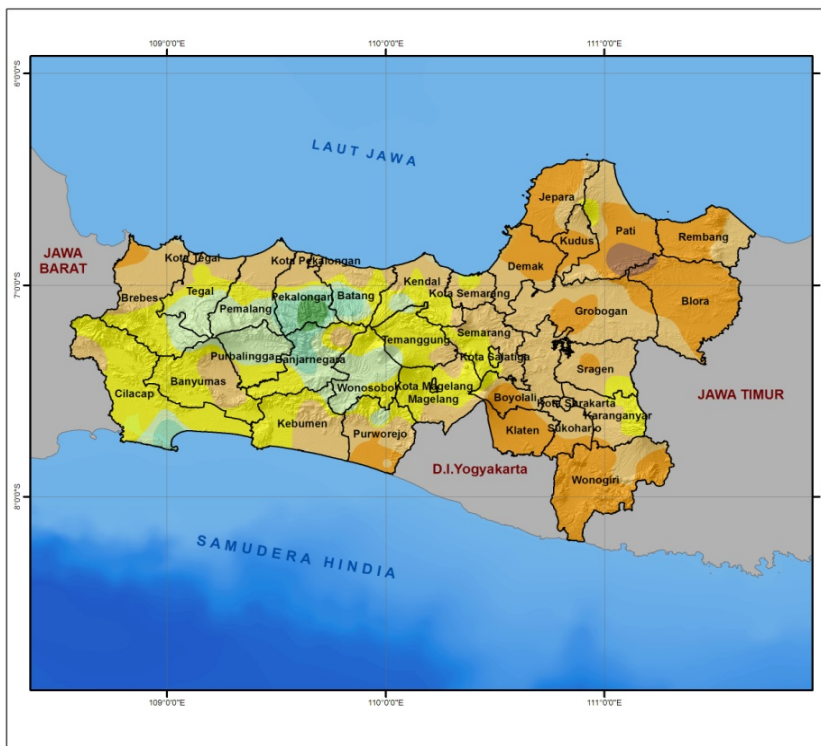
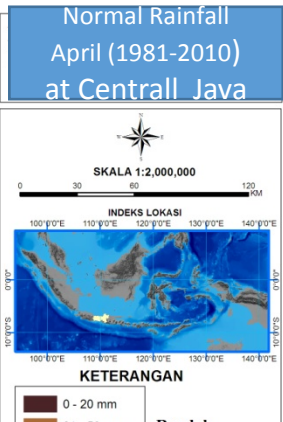
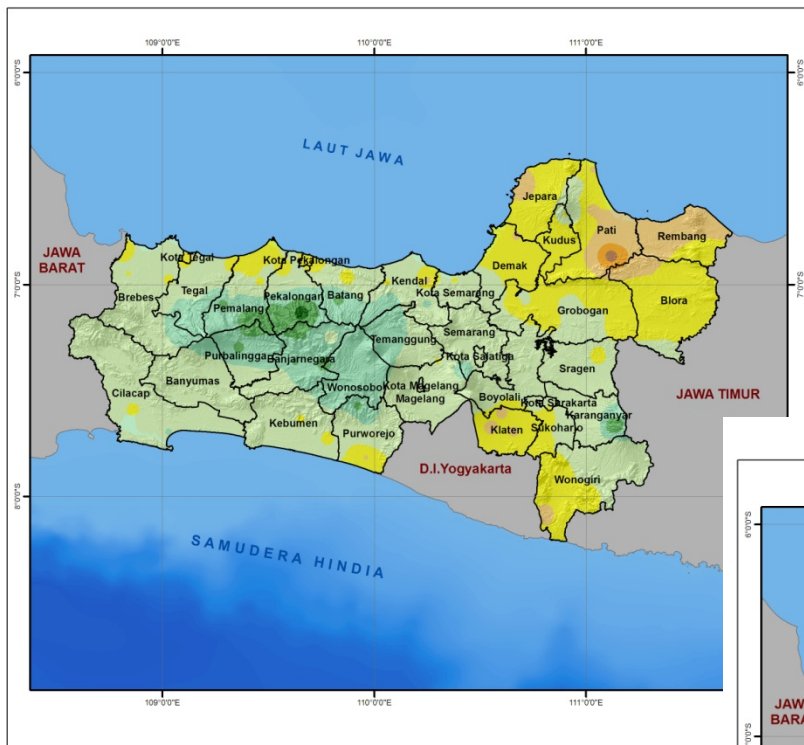
Keterangan :

BATAS KABUPATEN	BATAS ZOM
APR I	MEI I
APR II	MEI II
APR III	MEI III
	JUN I
	JUN II
	JUN III
	JULI





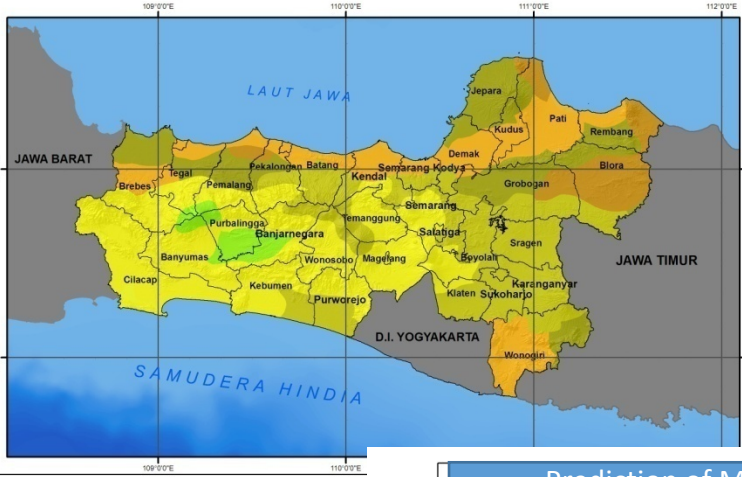
Normal Monthly Rainfall



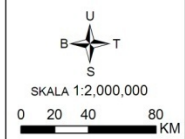
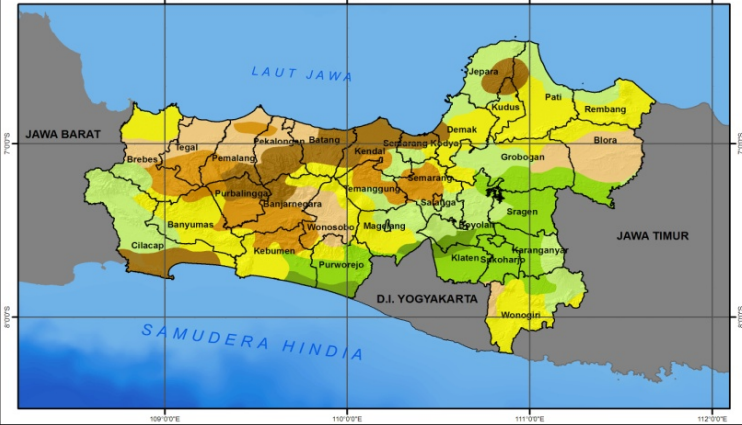


Dry Season Prediction at 2015

Prediction of Dry Season Onset at 2015 in Central Java

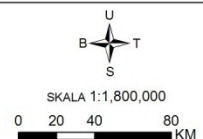
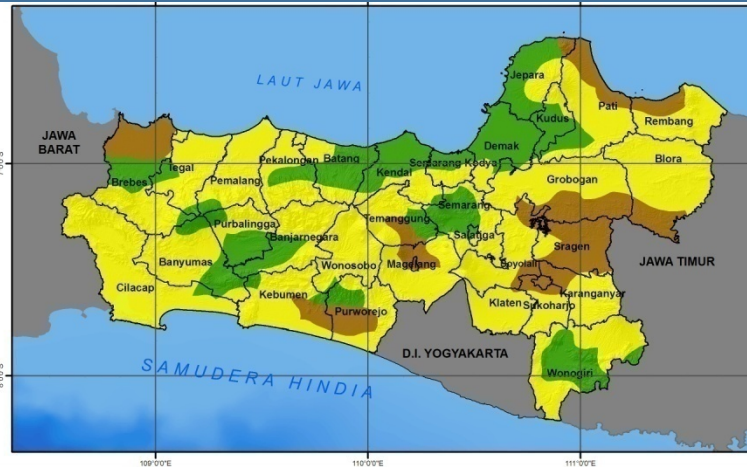


Comparison of Prediction of Dry Season Onset at 2015 in Central Java with its normal



Keterangan :
 ~ BATAS KABUPATEN
 APR I MEI I
 APR II MEI II
 APR III MEI III

Prediction of Monthly Rainfall Category at 2015 in Central Java



Keterangan :
 ~ BATAS KABUPATEN
 ATAS NORMAL
 NORMAL
 BAWAH NORMAL

- Sama
- Mundur 1 Das
- Mundur 2 Das
- Mundur ≥ 3 Das



CLIMATE INFORMATION



CONCLUSION



Climate Field School



■ 2011 (11 provinces)
■ 2012 (18 provinces)
■ 2013 (25 provinces)
■ 2014 (25 provinces)



Lombok Barat, NTB 2013



Mempawah, Kalbar 2014



Jembrana, Bali 2014



CLOSING

1. Climate Field School :

- Increasing *climate literacy*;
- Transform ***traditional farming*** to be ***scientific (observational) farming***;
- Change ***vulnerable agriculture*** to be ***resilience agriculture***
- Adapt *Climate Change*
- Support ***food security***;

2. To extend climate field school to other development sector which vulnerable to climate change.





THANK YOU

