Expert Group Meeting on Green Economy for Sustainable Development Goals : National Implementation of Low Carbon Development
Jeju, Korea, 13-15 March, 2018

Climate Information for Sustainable Development under the Climate Change

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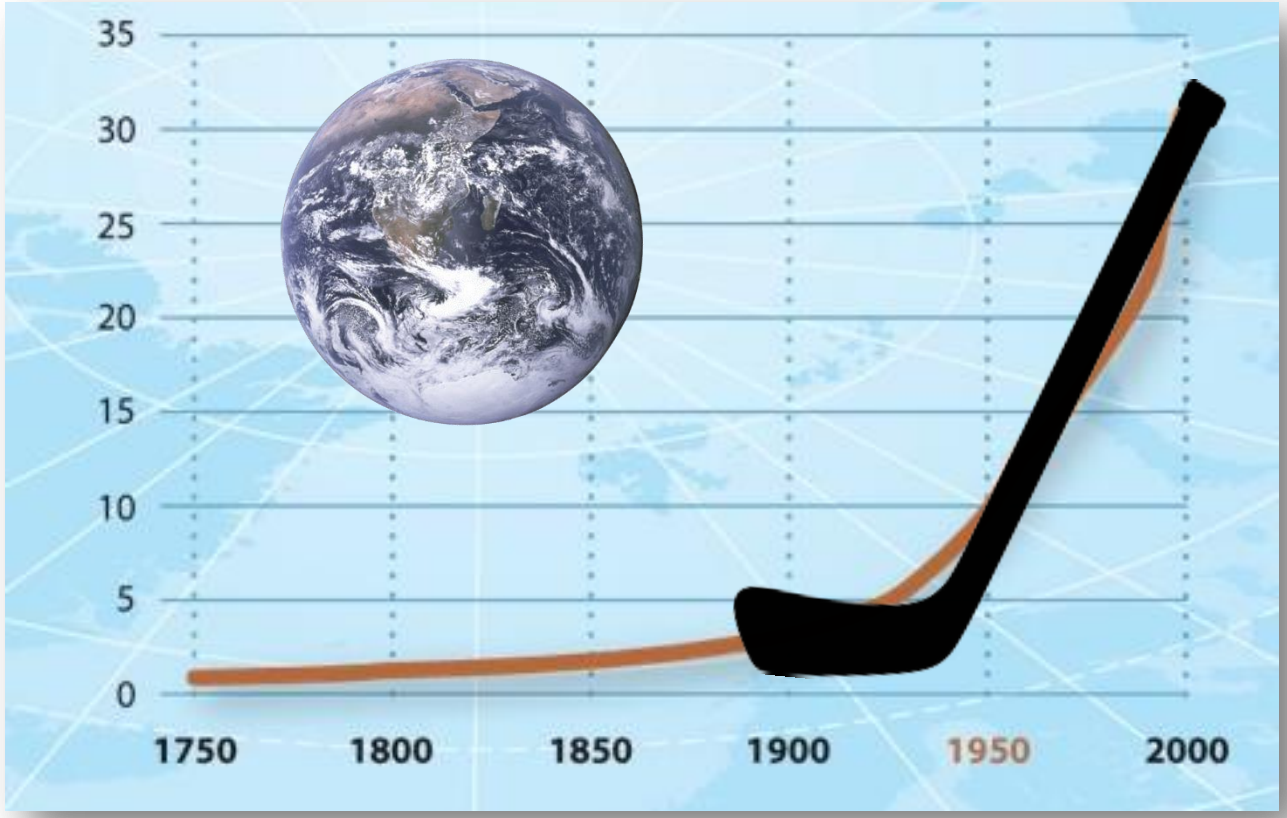
APCC APEC CLIMATE CENTER

Global Change



- Population
- Surface Temperature
- CO2 concentration
- Energy Consumption
- Globalization
- Loss of rainforest
- Species extinctions

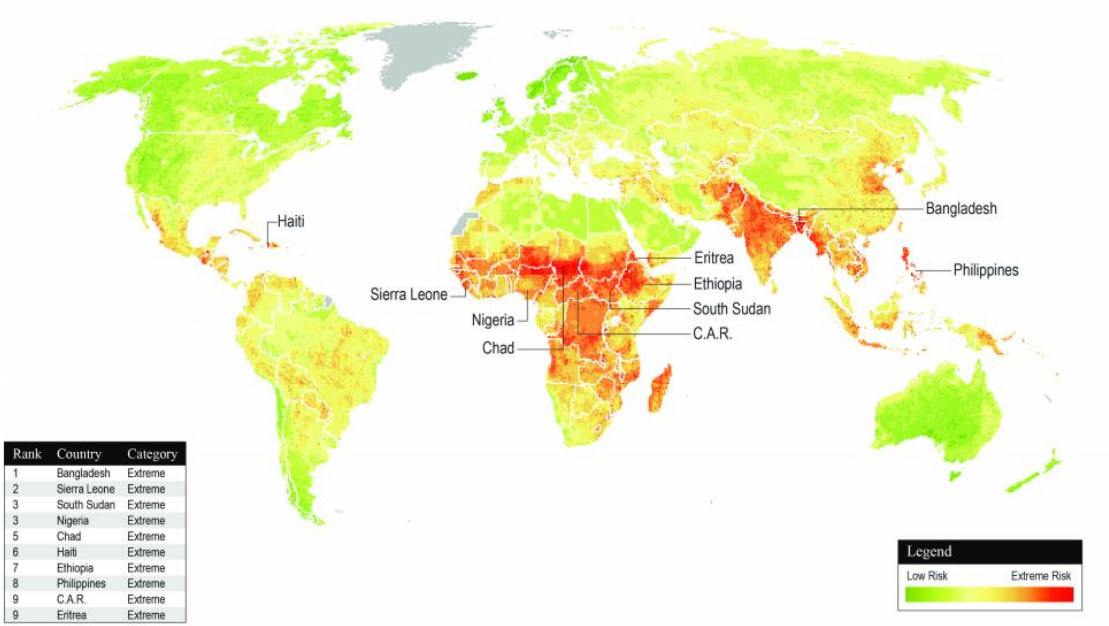
Sustainable Development Goals

To end all forms of poverty, fight inequalities and tackle climate change, while ensuring that no one is left behind

Sustainable development through Low carbon economy

- Transform industrial activity more efficient and energy effective
- Less resource intensive industry
- "SMARTER" (Innovative) economy in all senses
  - Requires change in conventional socioeconomic activity

No one left behind



Rank	Country	Category
1	Bangladesh	Extreme
2	Sierra Leone	Extreme
3	South Sudan	Extreme
3	Nigeria	Extreme
5	Chad	Extreme
6	Haiti	Extreme
7	Ethiopia	Extreme
8	Philippines	Extreme
9	C.A.R.	Extreme
9	Eritrea	Extreme

- The most vulnerable
- The least developed
- With minimal capacity

Development though “smarter” economy is more urgent but even more challenging where socioeconomic basis is fragile to environmental change

Climate Impacts on the LDCs

- Direct cause (Disaster)
  - Tropical cyclones
  - Heavy rainfalls
  - Heat waves
  - Droughts (!)
- Indirect cause
  - Famine, Water issues
  - Epidemics

Syrian civil war → Drought → Migration to urban area → Increase instability → Conflicts

SCIENCE • CLIMATE CHANGE

Middle East Drought That May Contribute to Syrian War is Worst in 900 Years, Study Says

Source : TIME

Source : PNAS

Armed-conflict risks enhanced by climate-related disasters in ethnically fractionalized countries

Carl-Friedrich Schleussner[a,b,c,1], Jonathan F. Donges[a,d], Reik V. Donner[a], and Hans Joachim Schellnhuber[a,e,1]

[a]Potsdam Institute for Climate Impact Research, 14473 Potsdam, Germany; [b]Climate Analytics, 10969 Berlin, Germany; [c]Integrative Research Institute on Transformations of Human–Environment Systems, Humboldt University, 10099 Berlin, Germany; [d]Stockholm Resilience Centre, Stockholm University, 114 19 Stockholm, Sweden; and [e]Santa Fe Institute, Santa Fe, NM 87501

Climate Impacts on the LDCs

- Unfavorable weather conditions deteriorate the emergency situation and response actions

Haiti earthquake (2010)

Source : wired

Superstorm Sandy (2012)

Drought (2014-2016)

Source : NBC

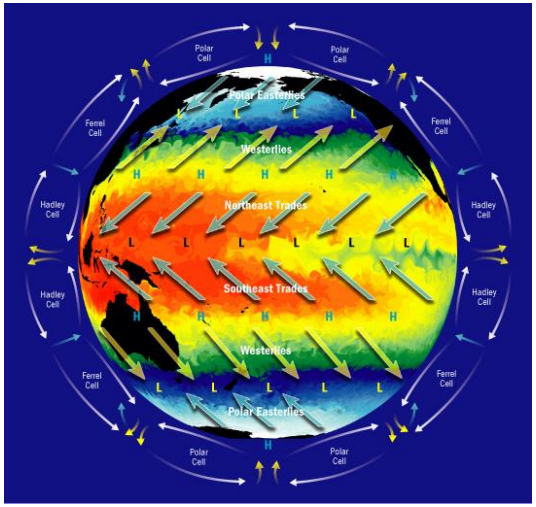
Cholera outbreak (2010)

Still 55000 people are in the camp (2016)
2.5 million Haitians need humanitarian aid.

Climate

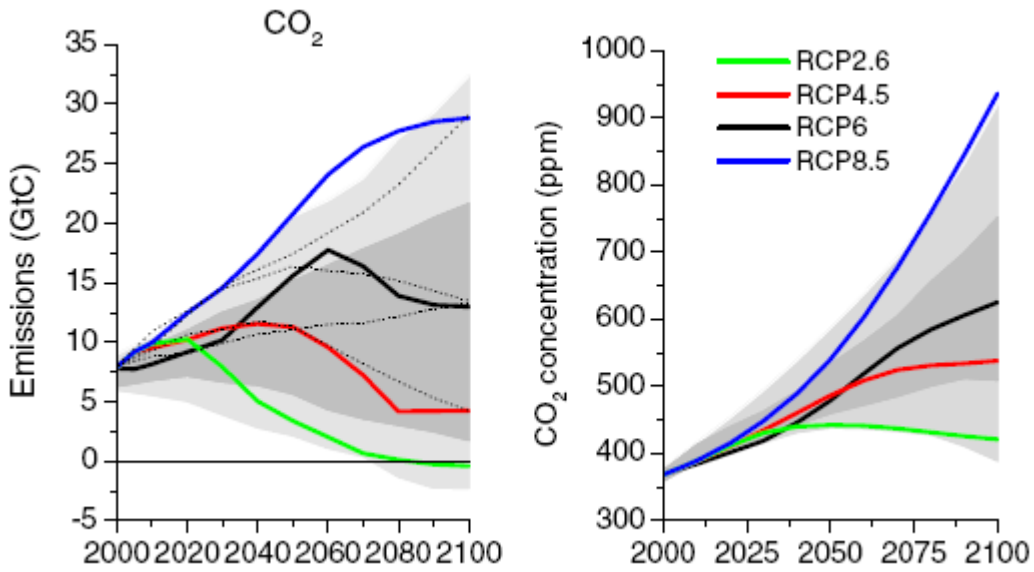
- Expected environmental condition of lives on earth

Climate = Expectation



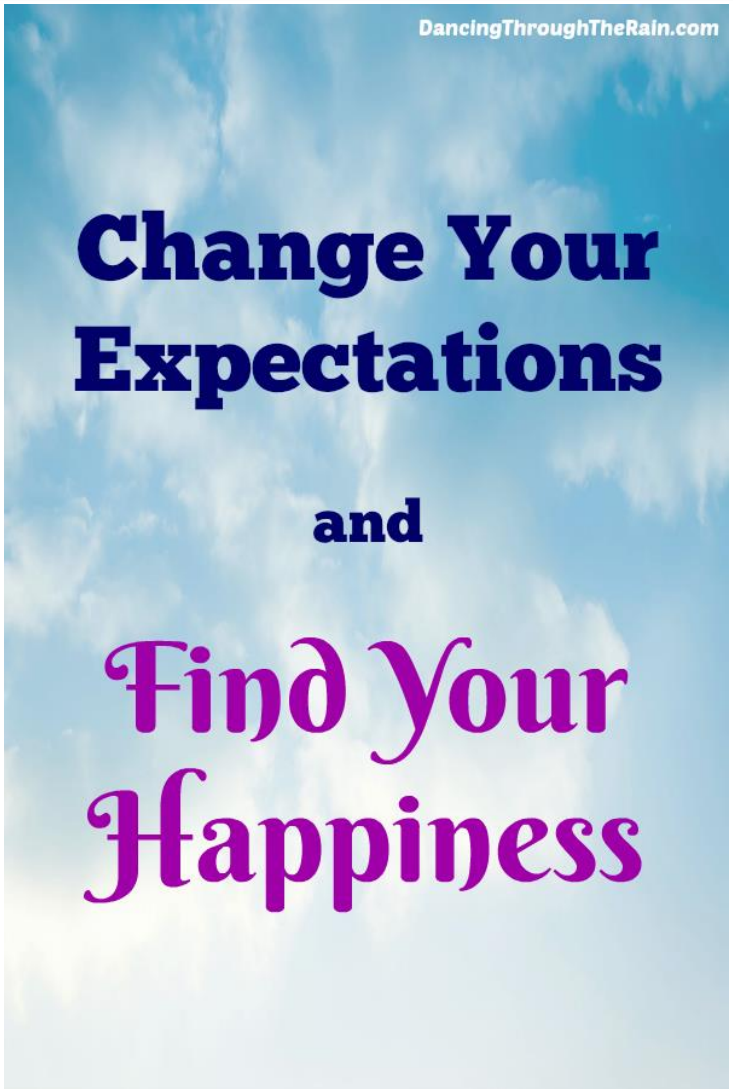
Climate Change

Climate Change = Change our Expectation!



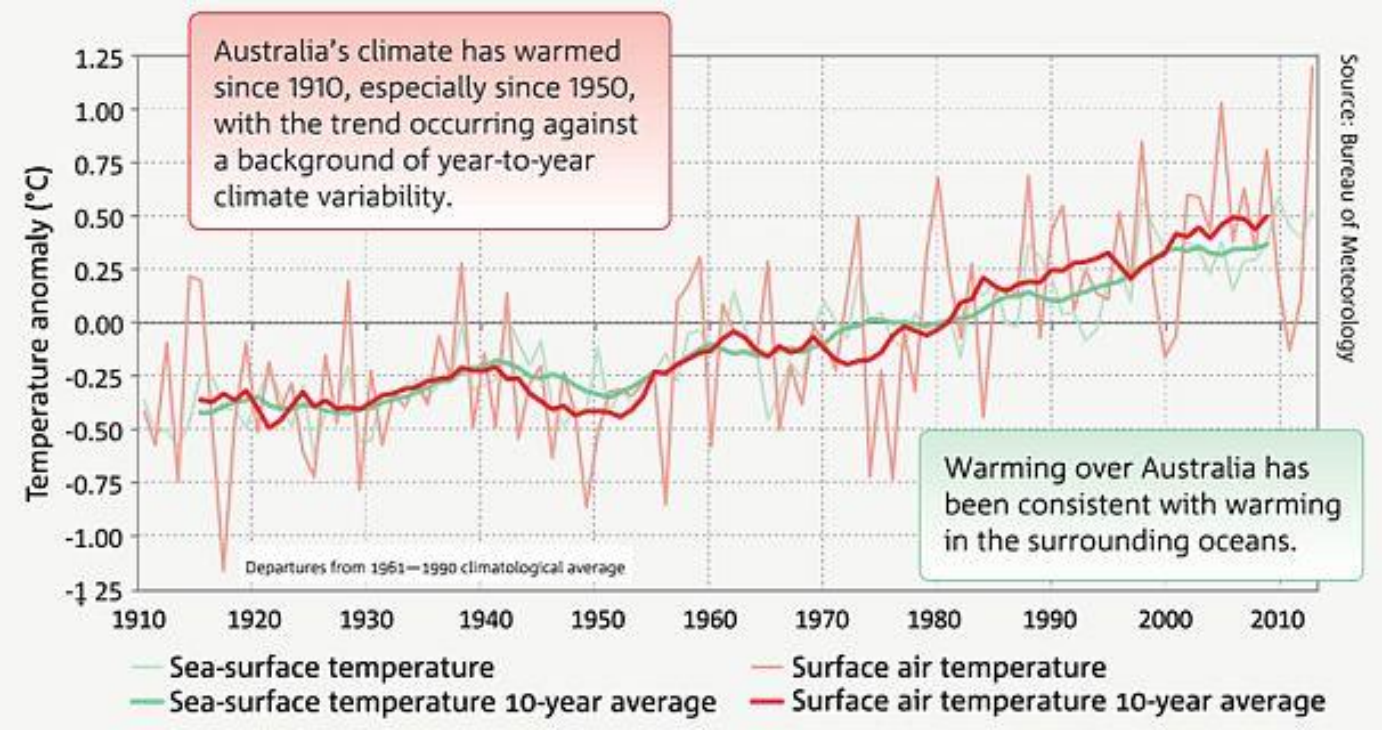
Low carbon economy

Change expectation?



Climate prediction

Climate change and variability



- Climate Change : long-term
- Climate Variability : short-term (related with extreme weather/hazards)

✓ Changing characteristics of climate variability is a key of climate change

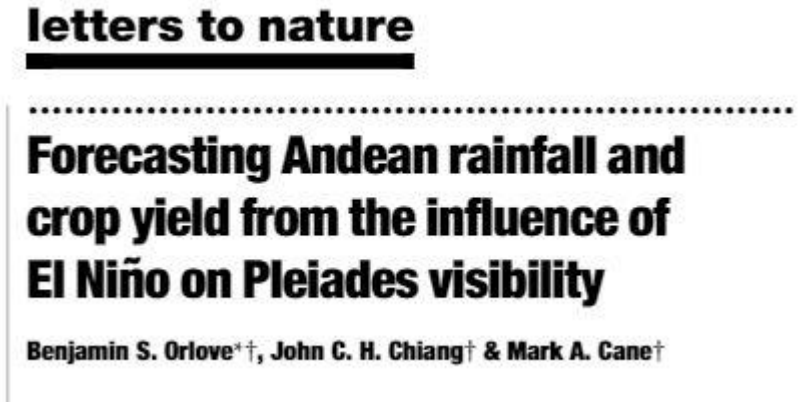
Tackling Impact of climate change

- Is mostly experienced via extreme weather events (variability)
- If we have some info on such variability, we may react as we “expected” : climate prediction
  - Smart decision making using climate prediction information
- Converting climate information on current climate variability to action : no-regret and resource effective measure to tackle climate change and to achieve sustainable development goals
- no emission!

Seasonal prediction

- Target : seasonal weather statistics with a few months lead time
  - Mostly, seasonal or monthly mean Temp. or Prec.

- Why we do this? : for planning



letters to nature

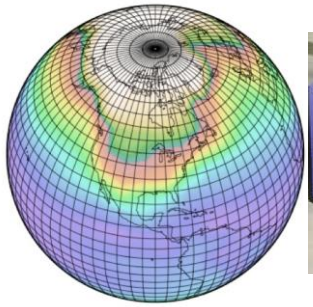
Forecasting Andean rainfall and crop yield from the influence of El Niño on Pleiades visibility

Benjamin S. Orlove*†, John C. H. Chiang† & Mark A. Cane†

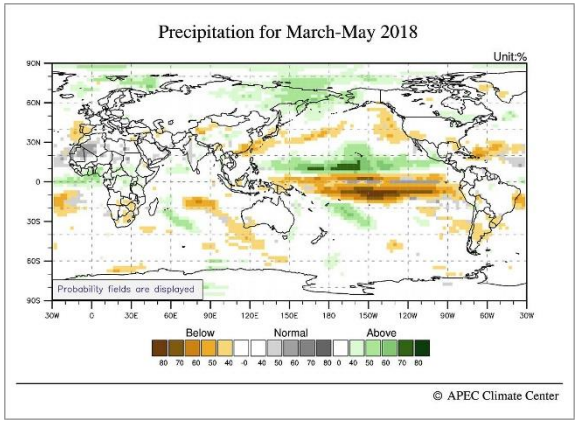
Operational Seasonal prediction

- Every month, many NHMSs and climate centers regularly generates seasonal forecast for next 3-9 months

< WMO GPCs >



Climate model : numerical representation of climate syste



Global Framework for Climate Services

Make climate information available for decision making

User Interface Platform

Users can make their voices heard through the Platform and make sure climate services are relevant to their needs.

Climate Services Information System

The production and distribution system for climate data and information products that address user needs.

Observations and Monitoring

The essential infrastructure for generating the necessary climate data.

Research, Modeling and Prediction

To advance the science needed for improved climate services that meet user needs.

Capacity Development

It will support the systematic development of the institutions, infrastructure and human resources needed for effective climate services.

Priority areas

Agriculture and food security

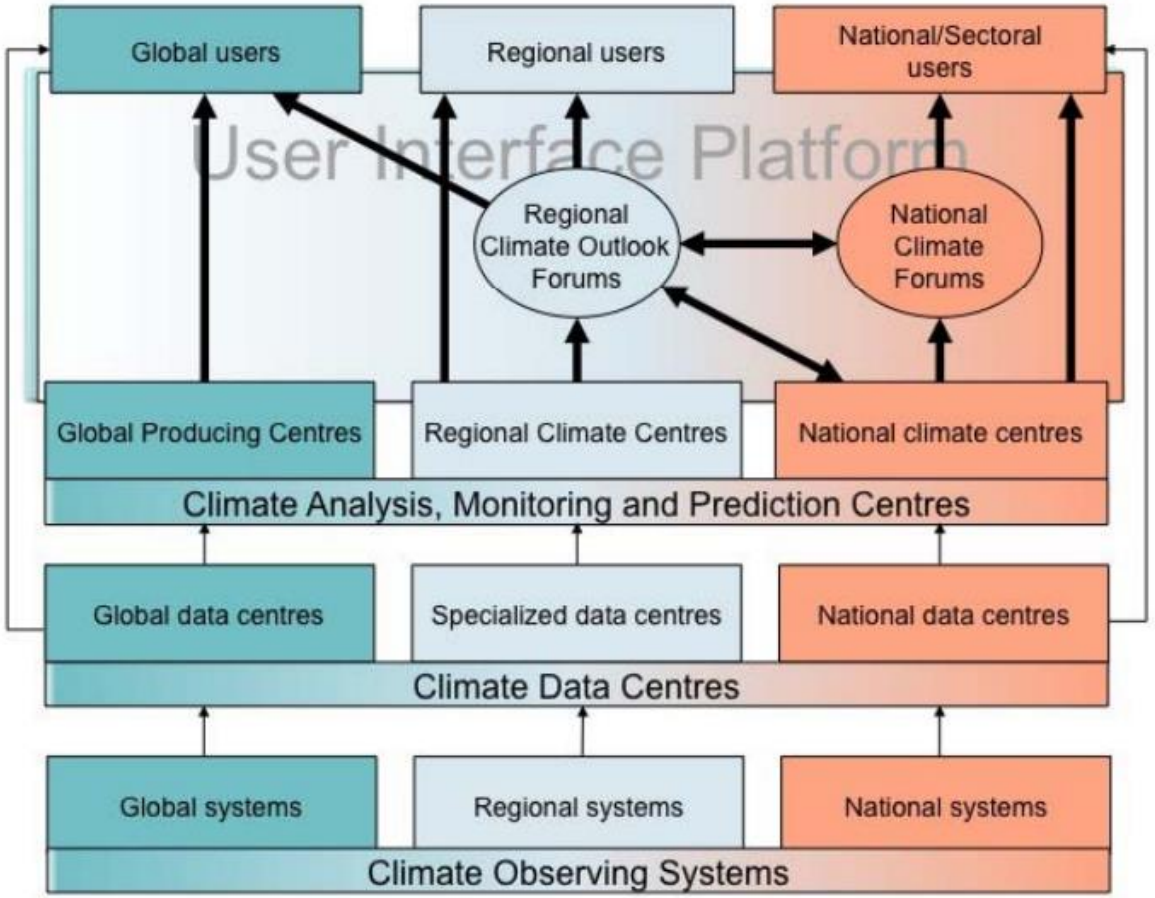
Disaster risk reduction

Energy

Health

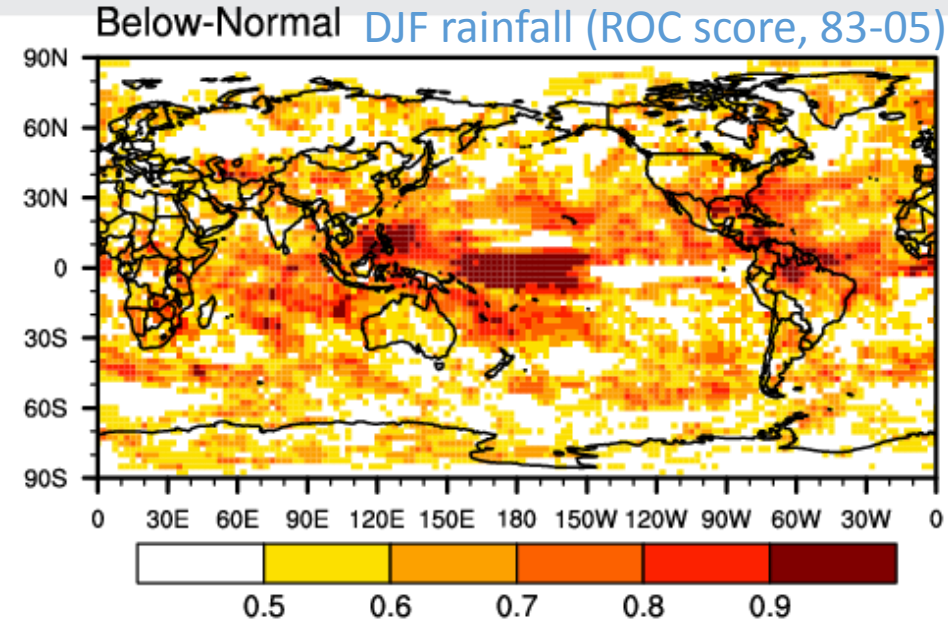
Water

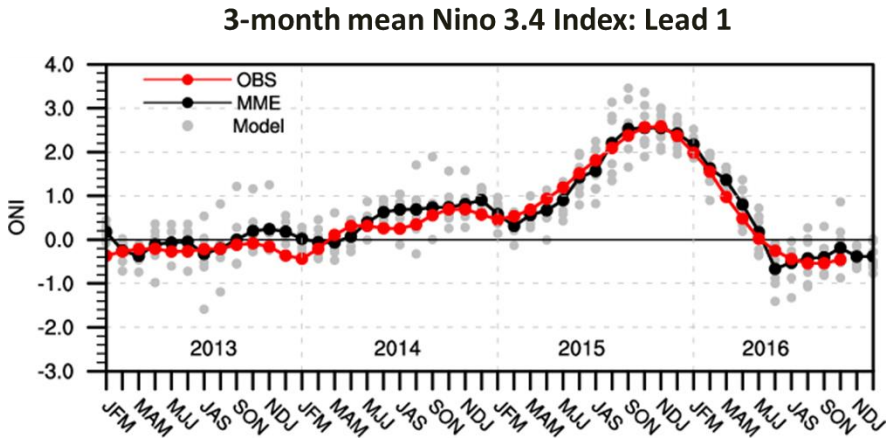
Climate Services Information system

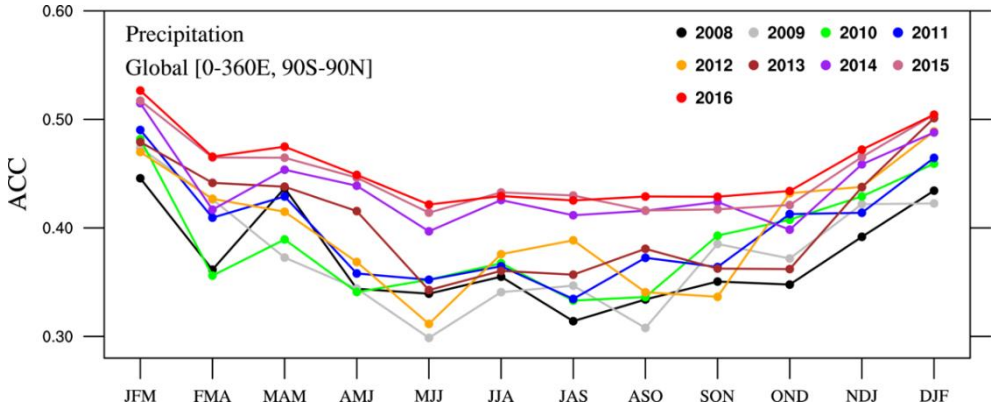


Currently “working” information flow is seasonal prediction

Current capability : ocean origin skill





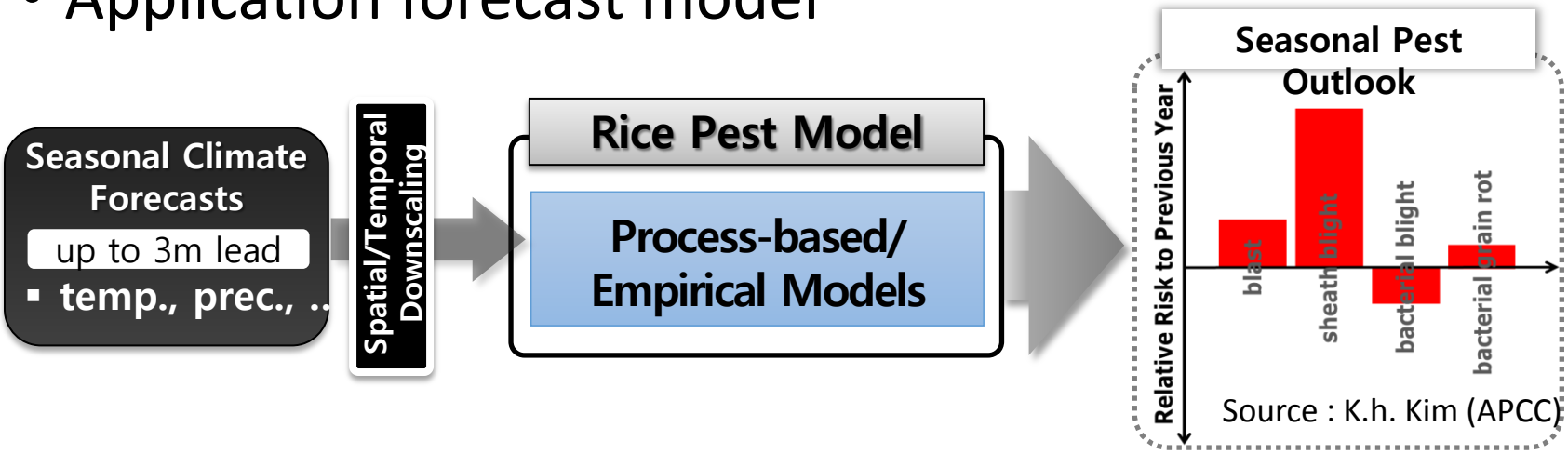


Able to produce reliable information in some area (tropics) and ENSO

limitation in predicting local climate condition

Application of climate prediction

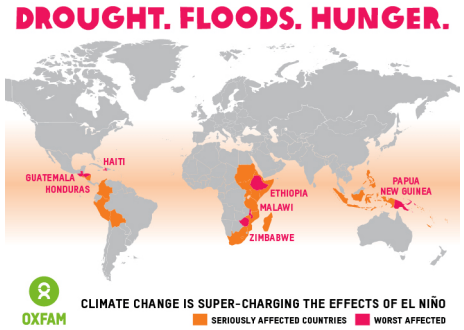
- Application forecast model



Source : BoM

Seasonal forecasting of fire over Kalimantan, Indonesia

A. C. Spessa[1,10], R. D. Field[2,3], F. Pappenberger[4,5,6], A. Langner[7], S. Englhart[8], U. Weber[9], T. Stockdale[4], F. Siegert[8,13], J. W. Kaiser[4,10,11], and J. Moore[12]



National Implementation of Climate Services

- Each country has “Met. Services” (provider)
- Increasing perception on extreme weather (user)
- Climate related Risk Management (goods)

  ⇨ using Climate information for benefit

- Public sector driven but Public-Private partnership is essential

Summary and conclusion

- Sustainable development needs “smarter” activity
  - More effective use of resources
  - No-regret measures to tackle climate change
- Climate Variability is a key man to deal with (in particular, developing countries)
- Climate prediction (seasonal prediction) is settled down as a usable climate information
- Using climate prediction in other sector is widely attempted and may be possible (but needs more efforts)
  - Well aligned with SD
- Relatively good setting for National Implementation
- Worth to pay more attention!

Thank you