Tailoring Climate Information for better use
: APCC's effort

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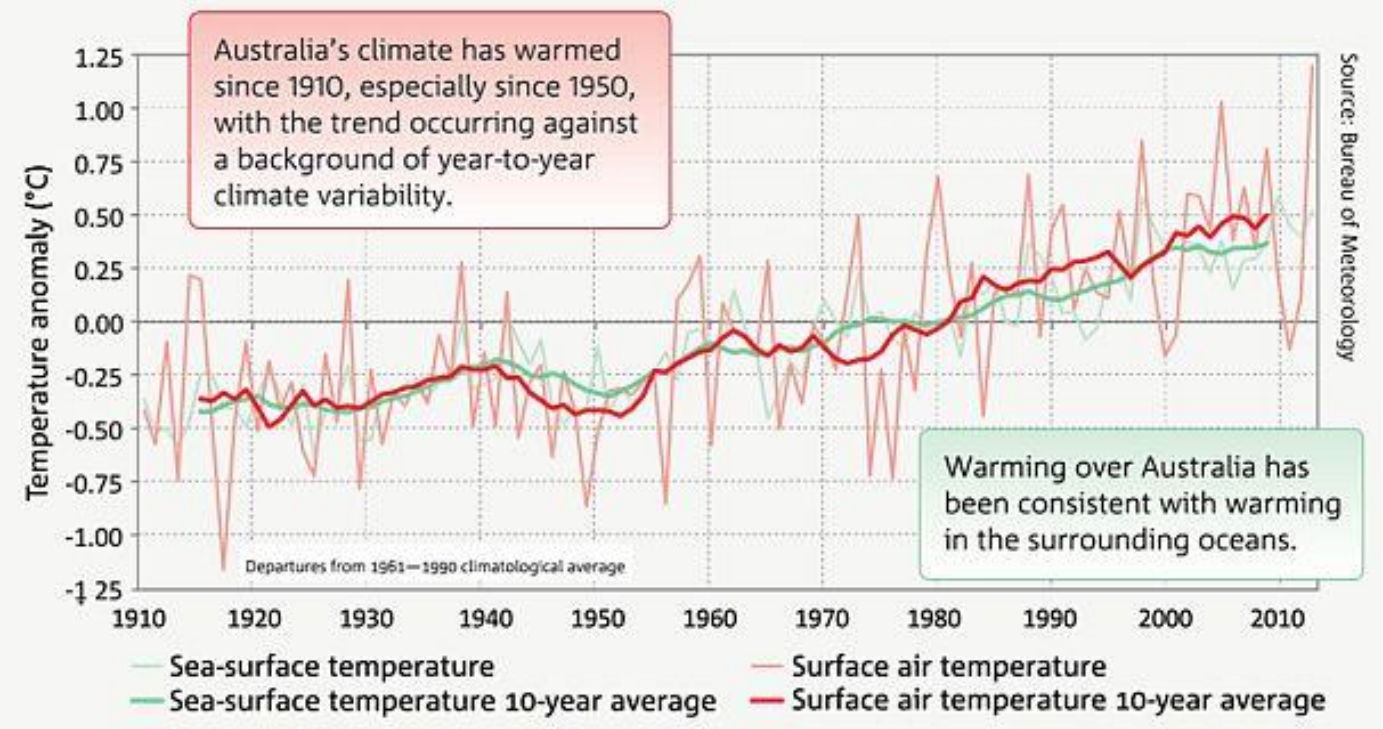
Climate Change & Variability



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

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

Responding to Climate Variability = Drill of Climate Change adaptation

Anticipated Change → Assessing impact → Action

Seasonal prediction

Prediction of weather statistics for a couple of seasons

Food and Agriculture Organization of the United Nations

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†

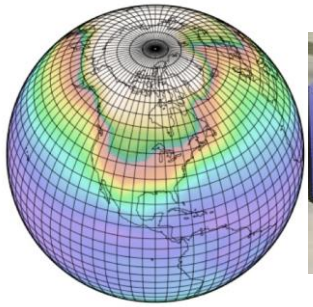
CLIMATE-SMART AGRICULTURE

Using seasonal forecasts to support farmer adaptation to climate risks

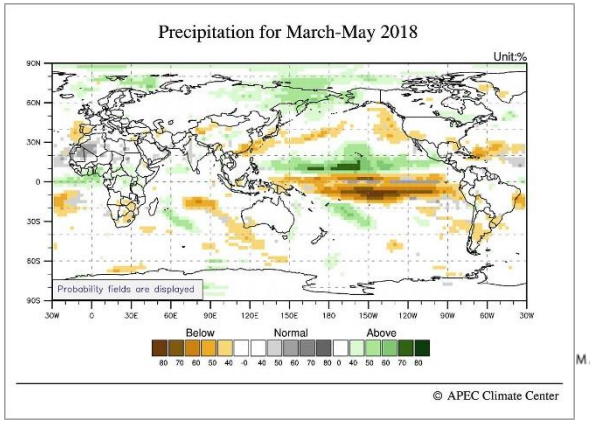
Operational Seasonal prediction

- 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



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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

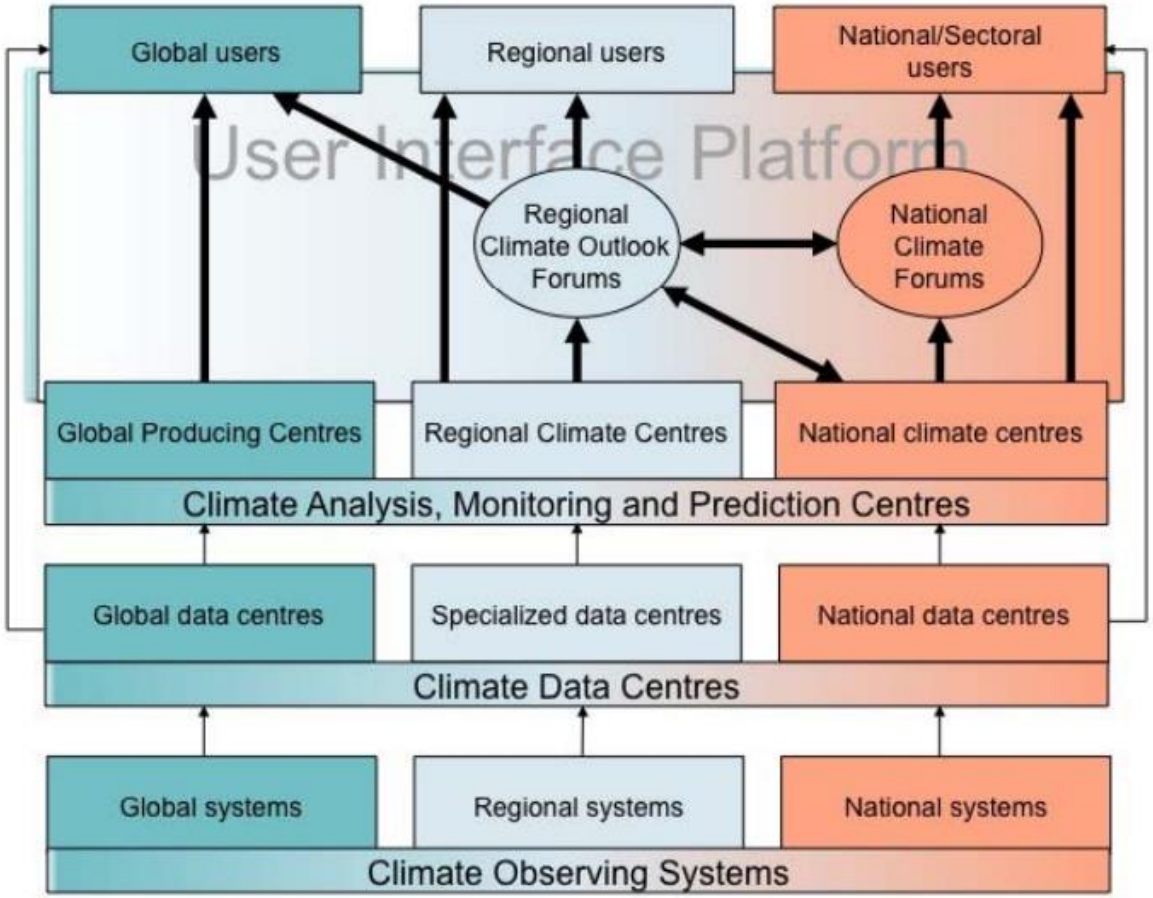
Disaster risk reduction

Energy

Health

Water

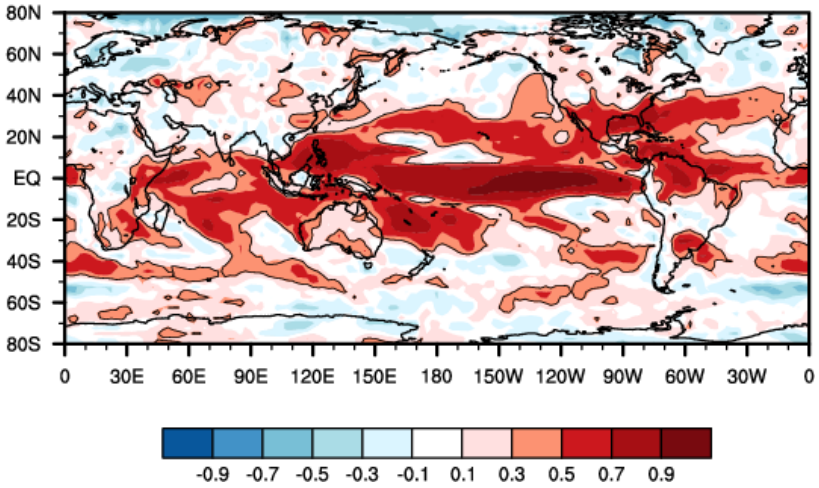
Climate Services Information system



Currently “working” information flow is seasonal prediction

Current capability : ocean origin skill

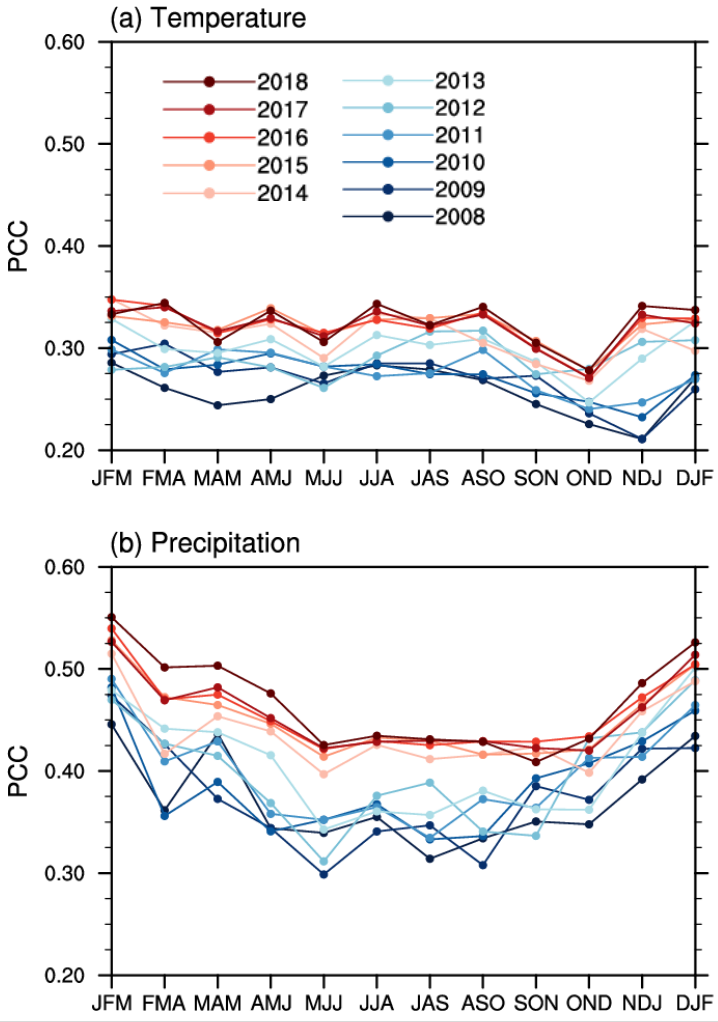
ACC (83-05, Prec. JJA)



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

limitation in predicting local climate condition

PCC (83-05)



We have,

- Operational
- Structured
- Progressing (!?)

  producing mechanism of climate information

- But uptake of such information in decision making is not common. Why?

Barriers

- Credibility (reliability) of forecast information
- Relevance of information for the decision context
- Awareness or Accessibility of information
- Institutional tendency (culture?) of users

Climatic Change

April 2005, Volume 69, Issue 2–3, pp 197–227 | Cite as

Weather Forecasts are for Wimps: Why Water Resource Managers Do Not Use Climate Forecasts

Authors | Authors and affiliations

Steve Rayner, Denise Lach, Helen Ingram

How to create “early adopters” of climate information? : clear reward

Tailoring climate information

- Transforming information to enhance relevance (and reliability)

- Scale : Climate info. >> user interest
  - Statistical downscaling
- Form (output) : lack of knowhow to use the info.
  - Statistical analysis of model output
  - Impact modeling

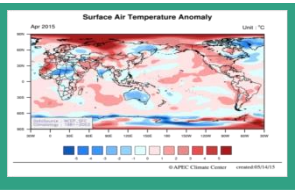
APCC's portfolio

Climate Information

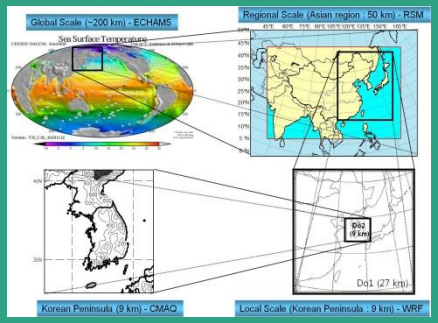
Reliable Prediction → **Localization** → **Application Technology** → **Services**

Creating Economic Value for Asia-Pacific Economies

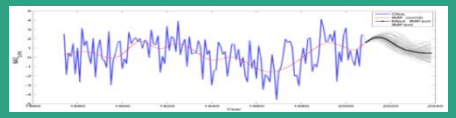
Multi-model ensemble

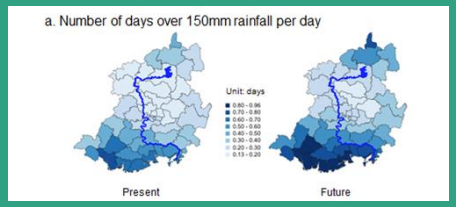


Downscaling



Impact assessment

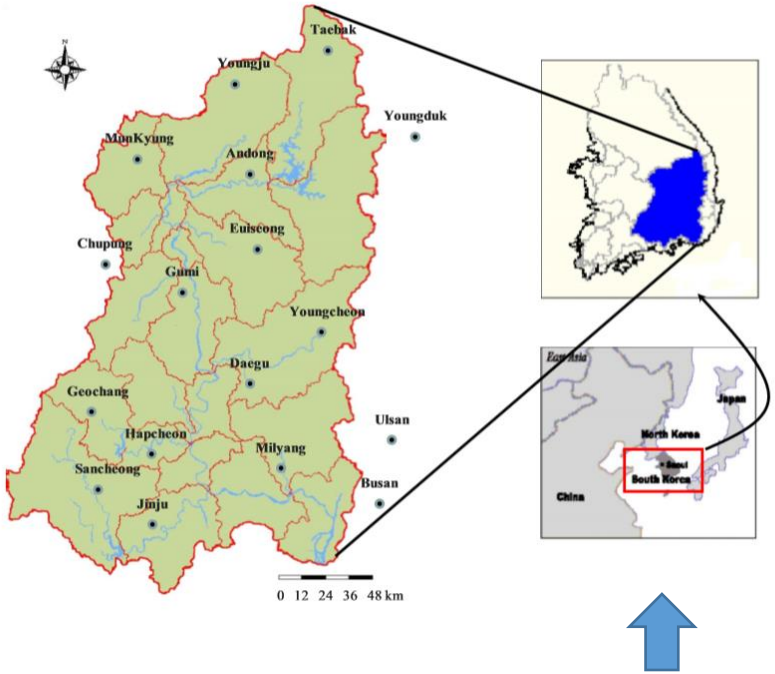




User-friendly services

Tailored Climate Information & Interdisciplinary Approach

Multi-site weather generator



Probabilistic forecast of seasonal rainfall and temperature

From M.-S. Kim

Spatio-temporal downscaling

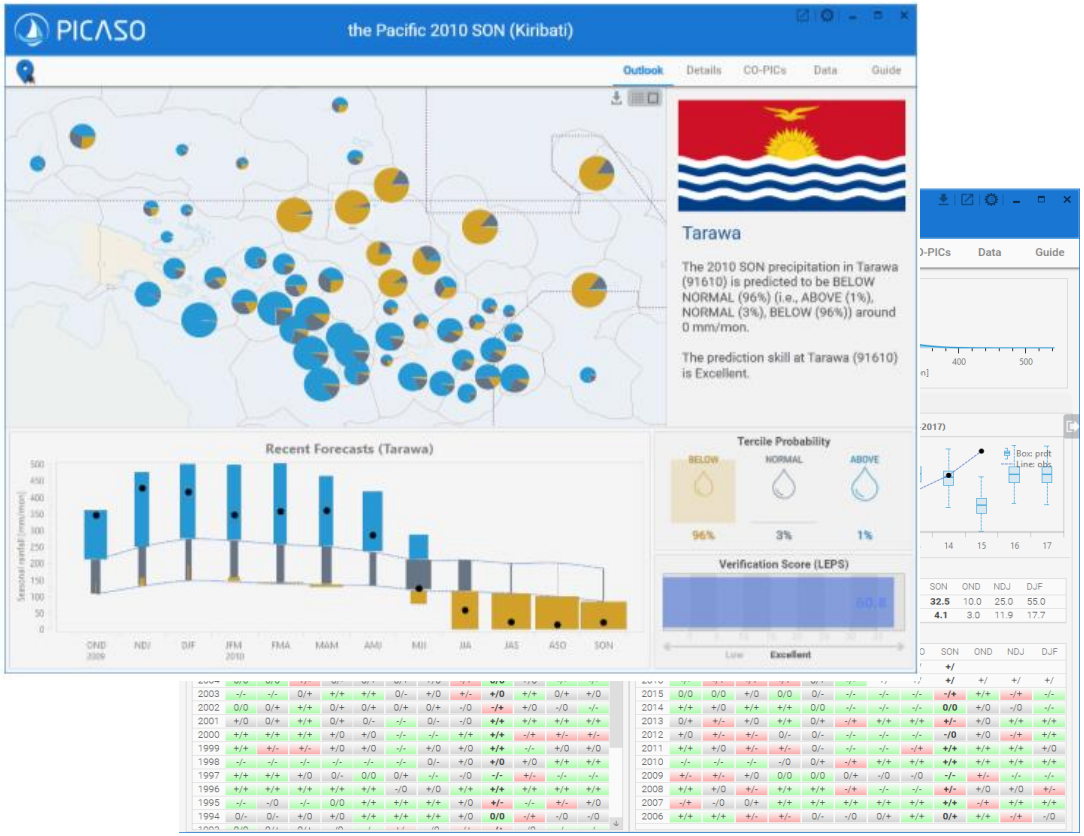
- Keep relationship among locations
- Reproduce probability distribution of large scale forecast

Grid WG

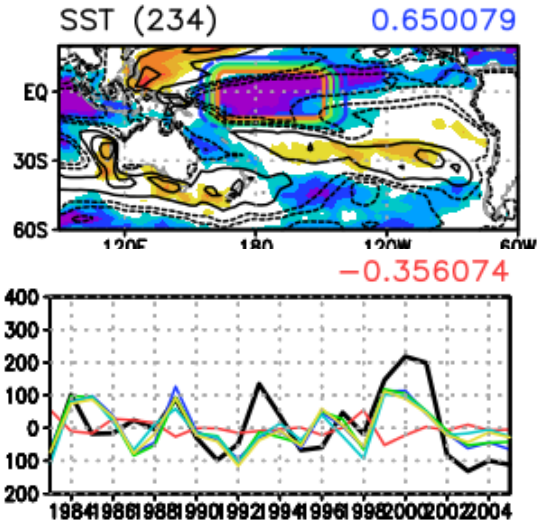
Relevance (Scale)

PICASO

- Pacific Islands Countries Advanced Seasonal Outlook



- Pointwise calibration tool of MME forecast (3month rainfall) for Pacific islands
  - Physical reasoning + statistical analysis



Relevance (Scale), credibility

From W. Kim, Y. Y. Lee, S. J. Sohn, B. Kim

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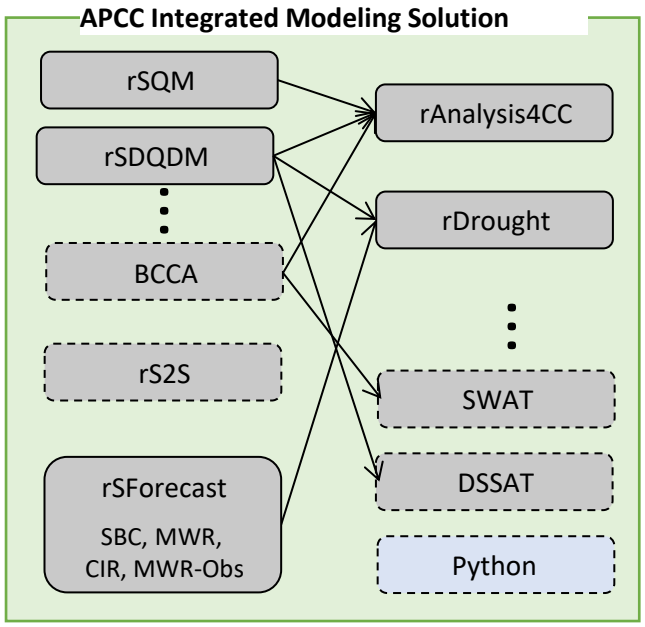
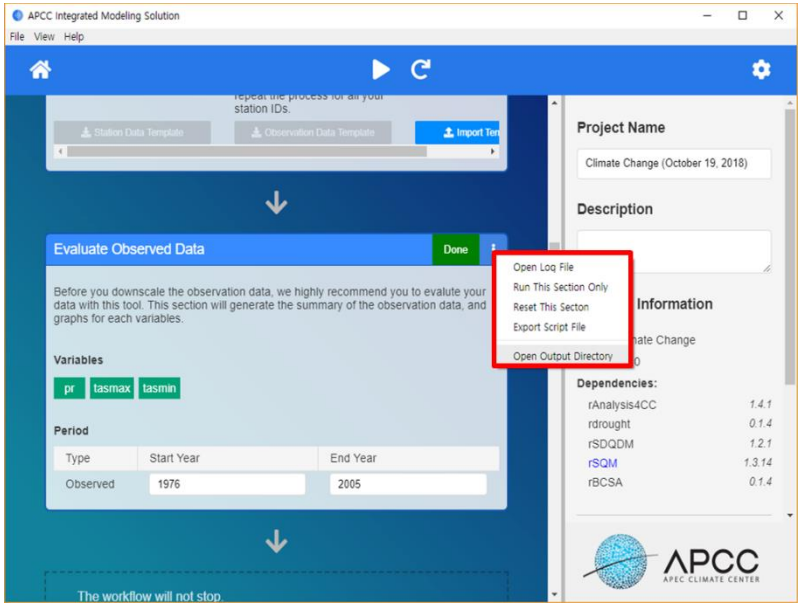
Tools

- Online Downscaling tools
  - CLIK : Seasonal forecast (pattern driven regression based)
  - AIMS : climate projection (WG for SF will be added)





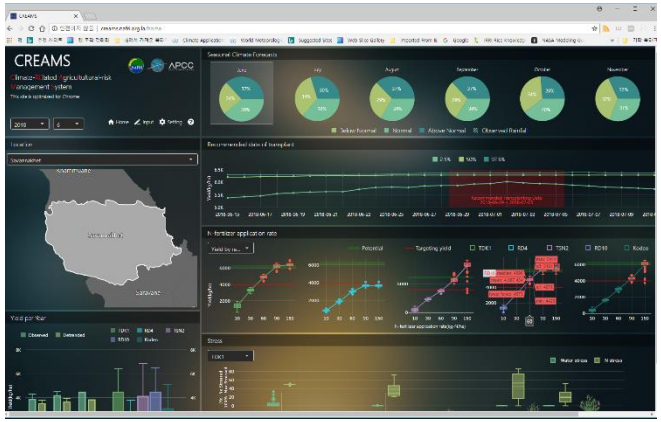
From J.-P. Cho

Relevance (Scale), Accessibility

Agricultural applications for decision support

From J.-A. Chun, D. Kim

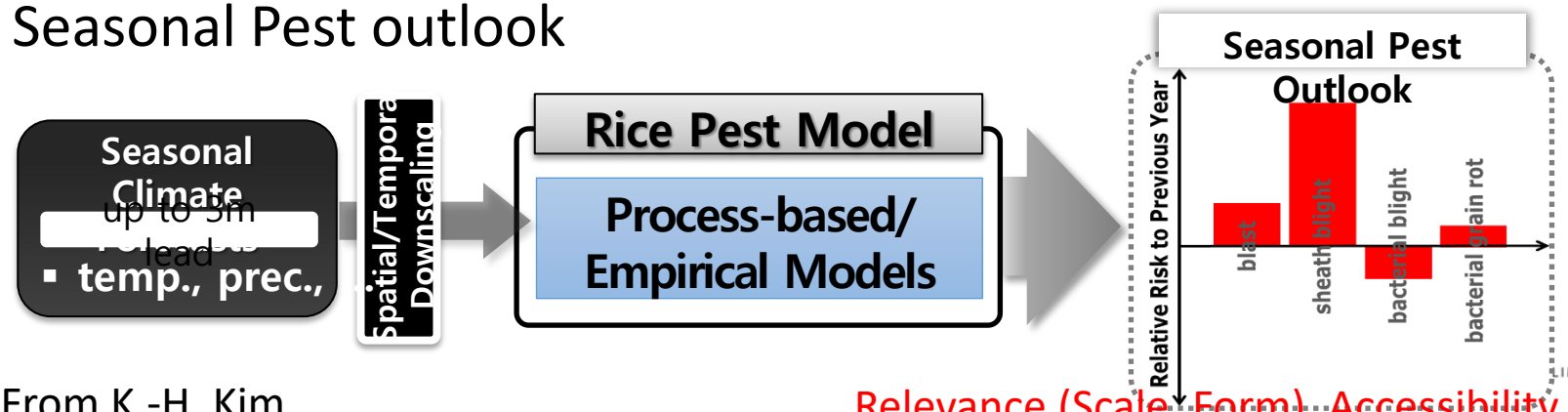
- CREAMS (Climate RElated Agricultural risk Management System)



Seasonal yield outlook for LAO PDR

- Provide crop management options
- Monthly update for Agri. agency

- Seasonal Pest outlook



From K.-H. Kim

Relevance (Scale, Form), Accessibility

Issues in tailoring

- Distortion of Information
  - Mismatch between Downscaled information and Original information
  - Maintain main “message” of Original output
  - Cautious and Physically sound calibration (e.g. systematic error correction)

- Uncertainty
  - Impact model may add uncertainty (use multi models)
  - Does it matter?
  - Strategic communication and/or co-production

Review on ENSO may be interesting

- Testbed for climate prediction in decision making
- Climate info. without Tailoring
- What make ENSO info. be perceived as ‘useful’ info.
  - Celebrity
  - well predicted (and studied)
  - well evaluated impacts

Summary

- Climate prediction (seasonal prediction) is settled down to be a key climate information with some useful skill
- To enhance uptake of climate information in decision making, transforming (tailoring) of information is needed
  - Scales, Form of information matter
- Not only information contents but also credibility and valuation are important

Fundamental aspect of forecast info.

Reward to create early adopters

Thank you

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