



Dialogue with Agricultural Sector to Promote Use of Climate Prediction of JMA

Nobuyuki Kayaba, Akina Yamada, Nobutaka Monnouji, and Masayuki Kyouda

Climate Prediction Division, the Global Environment and Marine Department,
Japan Meteorological Agency

email: climate-risk@met.kishu.go.jp

website: <http://www.data.jma.go.jp/gmd/risk/index.html>

16th Annual Climate Prediction Applications Science Workshop (CPASW)

May 22-24, 2018

Fargo, ND



Outline

1. Introduction and motivations
2. Activities to promote use of climate information
3. Achievements
4. Summary and Future issues



JMA Weather/Climate information

Today

Tomorrow

One week

One month

Three month

Nowcasts

Warnings/
Advisories

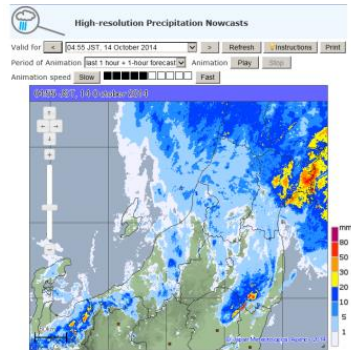
Weather forecasts

One-week forecasts

Early warning information
on extreme weather

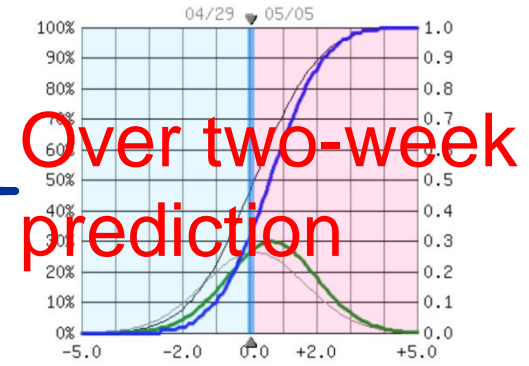
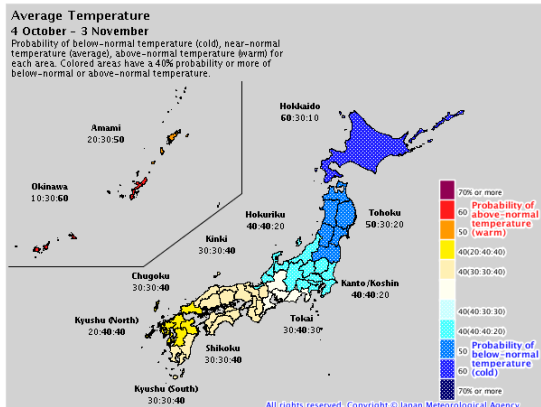
One-month forecasts

JMA forecasting services cover
a wide range of meteorological
information.



Updated at 05:00 JST, 10 March 2015

Date	10 Tue	11 Wed	12 Thu	13 Fri	14 Sat	15 Sun	16 Mon
Tokyo Daily Forecast							
Probability of Precipitation (%)	~10/20/10	0/10/10/0	10	20	20	50	40
Reliability	/	/	A	A	A	C	C



Seasonal forecasts/
El Niño outlook



Introduction and motivations

JMA expect its climate information to be used practically in agricultural sector for **assessment** the influence of extreme weather and climate for the **adaptation**.



Climate risk management process

JMA takes activities to develop best practices of the use of long-range forecasting in collaboration with user-sector organizations.

In the past 15th CPASW session, JMA indicated one collaborative activity “Develop Climate Risk Management Techniques for Agriculture”※ that JMA and the Agricultural Research Institute (National Agricultural and Food Research Organization; NARO) completed

※Summary report on these activities and outcomes for 2016 were available in Japanese at http://www.data.jma.go.jp/gmd/risk/nogyo_hokoku.html

To expand these techniques, JMA makes effort to continue dialogues with local agricultural organizations to promote use of climate information in **agricultural decision-making**.

JMA conducted joint researches with agricultural research Institutes (NARO) all over Japan.

Hokkaido

Beating potatoes harmful
for field condition



Create a variety of success
cases of climate information
usage

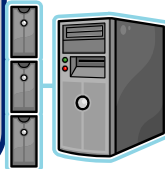
Tohoku

2-weeks ahead
Temperature prediction
for rice crops .etc



Kanto (Central)

Making data set of
weather information for
agriculture .etc



Kinki-Chugoku-Shikoku

Prediction of Red mold
disease of wheat



Kyushu-Okinawa

Prediction of High-
Temperature Damage
Rice Grain



NARO are planning to launch the
cultivation management systems for
whole regions in Japan, to supply
stable farm products.

Expansion is one of issues for these practical use !



Outline

1. Introduction and motivations
2. Activities to promote use of climate information
3. Achievements
4. Summary and Future issues



Two major activities for promotion of utilization of climate information in agricultural decision-making

JMA pays efforts to promote utilization by conducting two activities and to support especially agriculture instructors at a prefectural level.

- [1] Holding **seminars** for local agricultural organizations all over Japan (from 2015)
- [2] Publishing **guidelines** for how to utilize climate information at the JMA's the website※
(March, 2018)

※<http://www.jma.go.jp/jma/kishou/nougyou/tebiki.html>

Targets are agricultural instructors of prefectures all over Japan



Seminar

<aims>

- To make agriculture instructors understand **how to use climate information**
- To enable them **to instruct individual farmers to incorporate** such methods in their farming activities



< program >

- **Introduction** of **a variety of climate related information** provided by JMA and **a web-based application available** on the JMA's website
- **Explanation** on how to **understand such climate information** and **download climate data** via the JMA's website
- **Sharing of related experience and information** on good practices in the application of climate data in agricultural fields



The guidelines for how to utilize climate information (1)

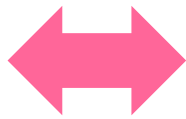
<aims>

- To use as a textbook in the seminar where agriculture instructions activities
- To strengthen of coordination between the prefecture and the meteorological office through improving the guideline

Strengthening of Coordination



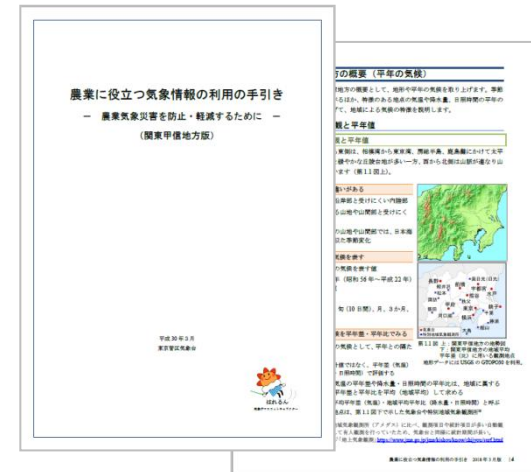
meteorological office
Appropriate offer of
the climate information,
commentary



agriculture instructor
use climate information
for decision making



Farmer
improving
productivity

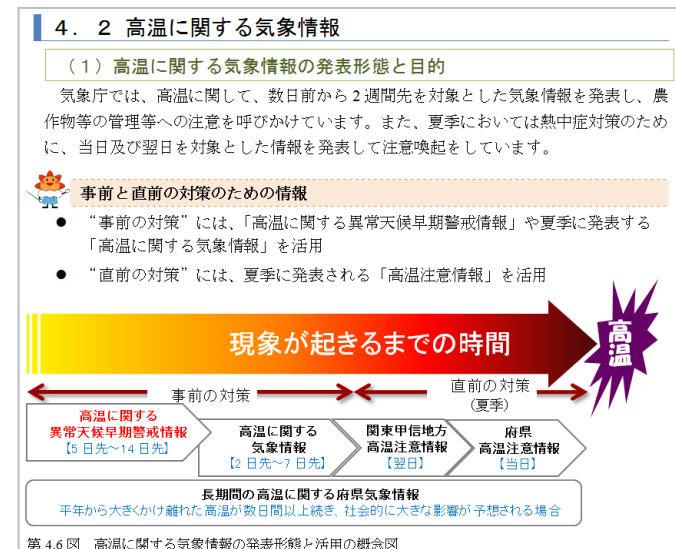
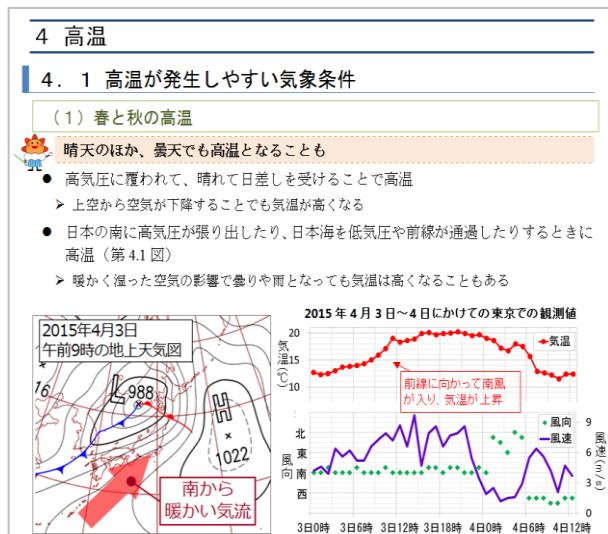




The guidelines for how to utilize climate information (2)

< Contents >

- Detailed procedures of **how to find and get climate information**
- Knowledges on **when and what kinds of information** such as early warning information on extreme weather is issued
- Reviews of **whether conditions** which are likely to trigger agricultural disasters such as high and low temperatures, drought, prolonged rainfall, lack of sunshine durations and heavy snowfall.
- **Information flows** that meteorological office and agriculture instructors of a prefectural issue to farmers when agricultural meteorological disasters are foreseen.





Outline

1. Introduction and motivations
2. Activities to promote use of climate information
3. Achievements
4. Summary and Future issues



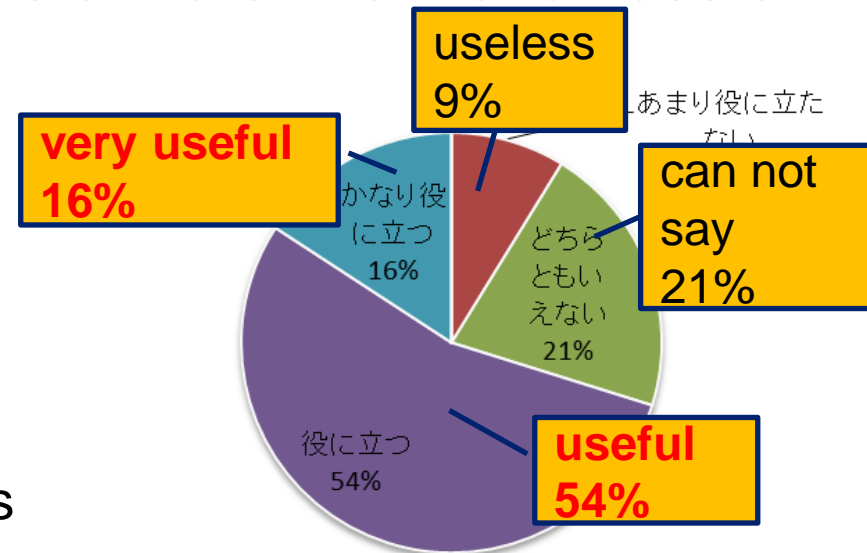
Achievements

through those activities...

- **Utilization of climate information is expanding**
 - It has been deeply recognized among agriculture instructors, that climate information such as “the early warning information on extreme weather” is useful for agriculture.

- Advanced utilization such as incorporation of probability prediction was reported from several prefectures.

“Is climate information useful?”



- **Detailed needs are accumulated**
 - JMA continues to pay more efforts improving climate information, user accessibility and operability.

Survey result at seminar
in Toyama Prefecture



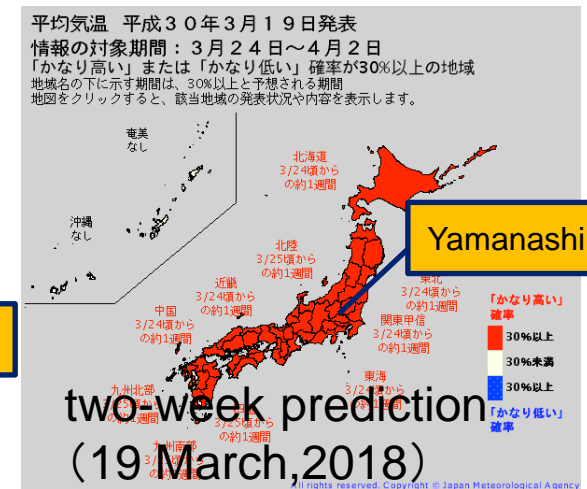
One of best practices

One agriculture instructor in Yamanashi Prefecture pressed **the predicted date on flowering of peach** taking into consideration two-week prediction, requesting individual farmers prepare and correspond to the predicted well in advance.

H30 モモの開花予想 第4報 (H30/3/20現在)				
The predicted date on flowering of peach (20 March, 2018)				
表 発育速度モデルによるモモ「白鳳」の開花予想				
今後の気温推移	flowering date	予想開花始め	昨年の開花始め	平年値 (H13～H29)
Conventional method (Using climatological)	4月2日 (平年)	20 April	4月8日	4月3日
Using prediction data	3月30日 (平年)	30 March	last year (2017)	mean (2008-2017)

予想地点は山梨市江曾原 (標高440m)、品種は「白鳳」

* モデル予測値: 気象庁HPにおける確率予測資料 (3/24～3/30、関東甲信地方、初期値3/18)



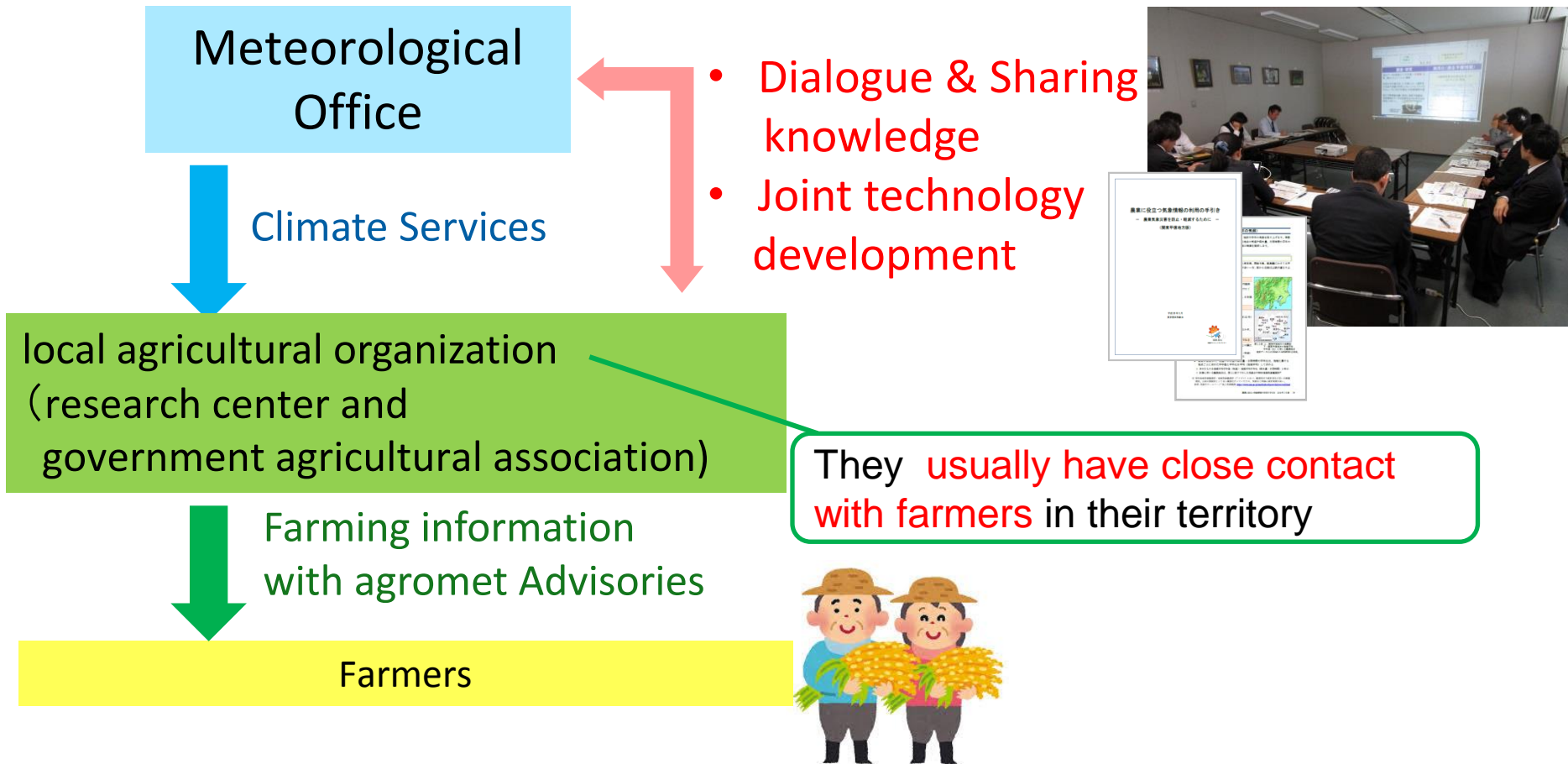
agriculture instructor
in Yamanashi Prefecture

As a result, peach flowered on **31 March**.
The predicted date using two-week prediction was more precise than the climatological date conventionally used.



Summary and Future issues

JMA makes effort to continue dialogue with local agricultural organization to promote a use of climate information in **agricultural decision-making**.



Expansion is one of future issues for practical use



Thank you so much for your kind attention.