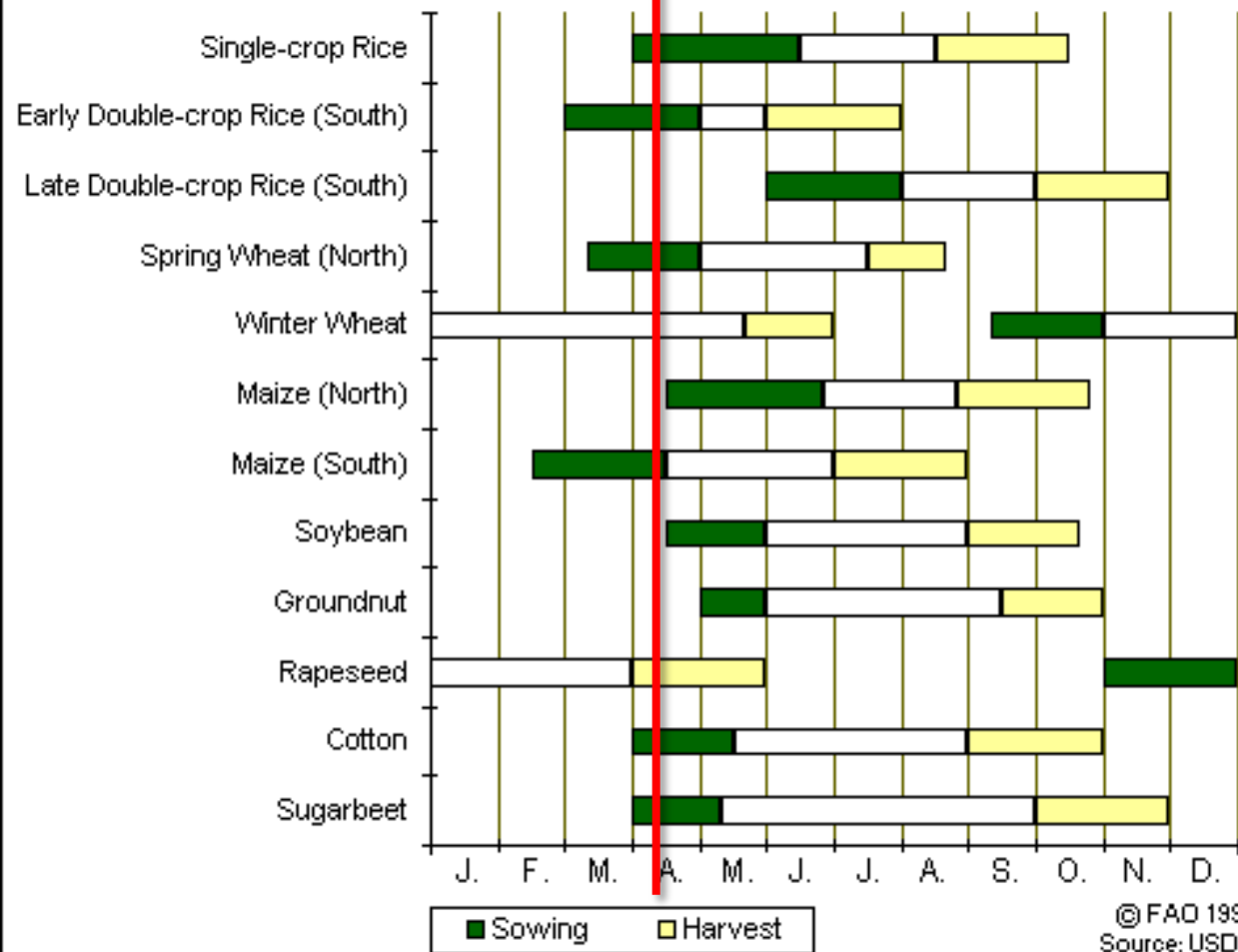
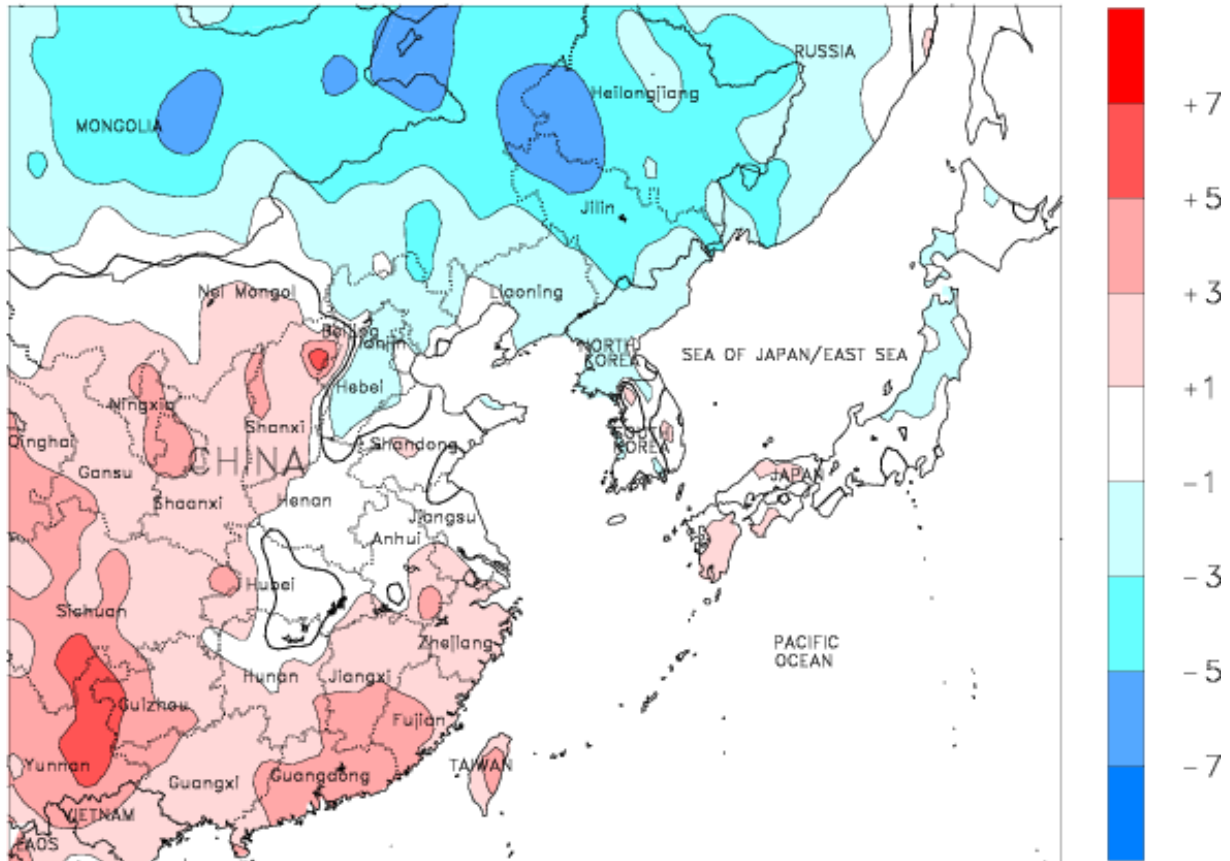


## Crop calendar of CHINA



# Monthly Temperature Anomaly Maps (February 2013)

EASTERN ASIA  
Temperature Anomaly (°C)  
February 2013

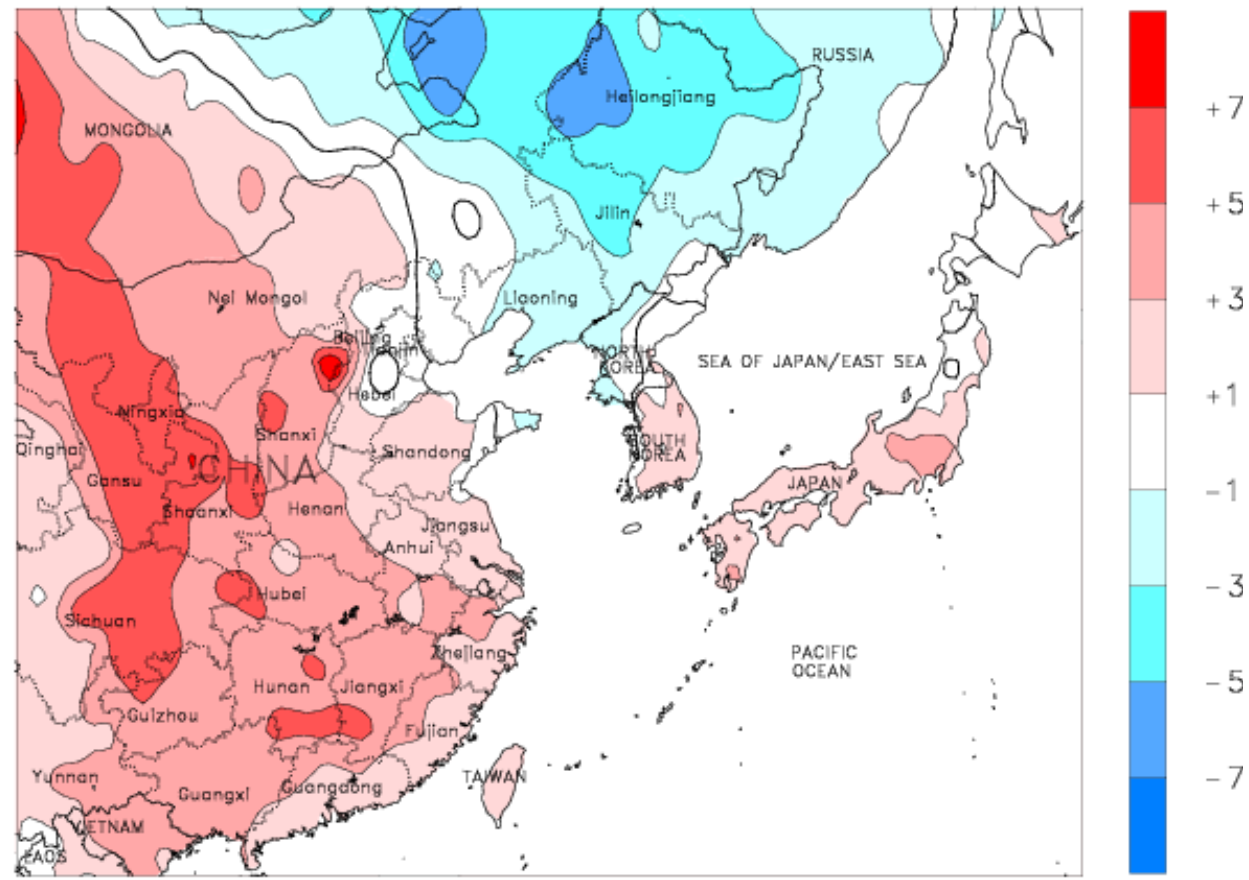


CLIMATE PREDICTION CENTER, NOAA  
Computer generated contours  
Based on preliminary data



# Monthly Temperature Anomaly Maps (March 2013)

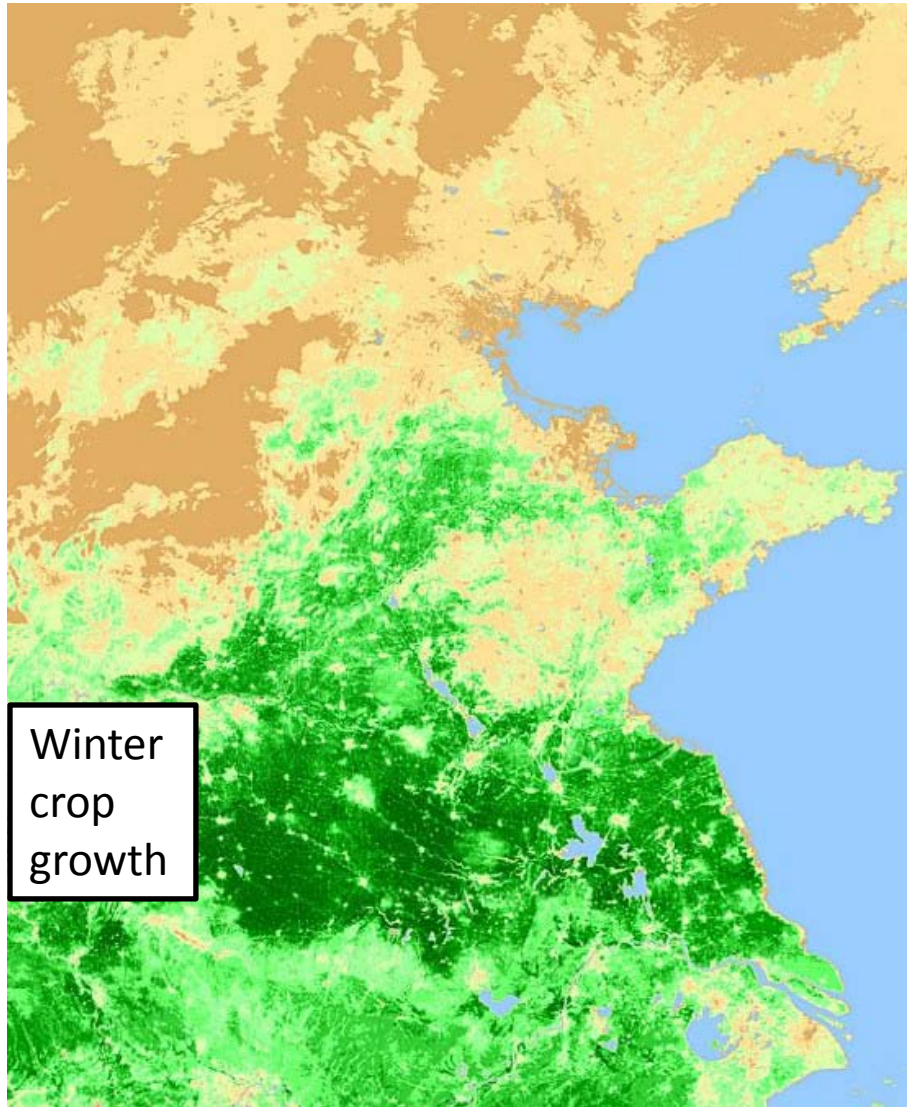
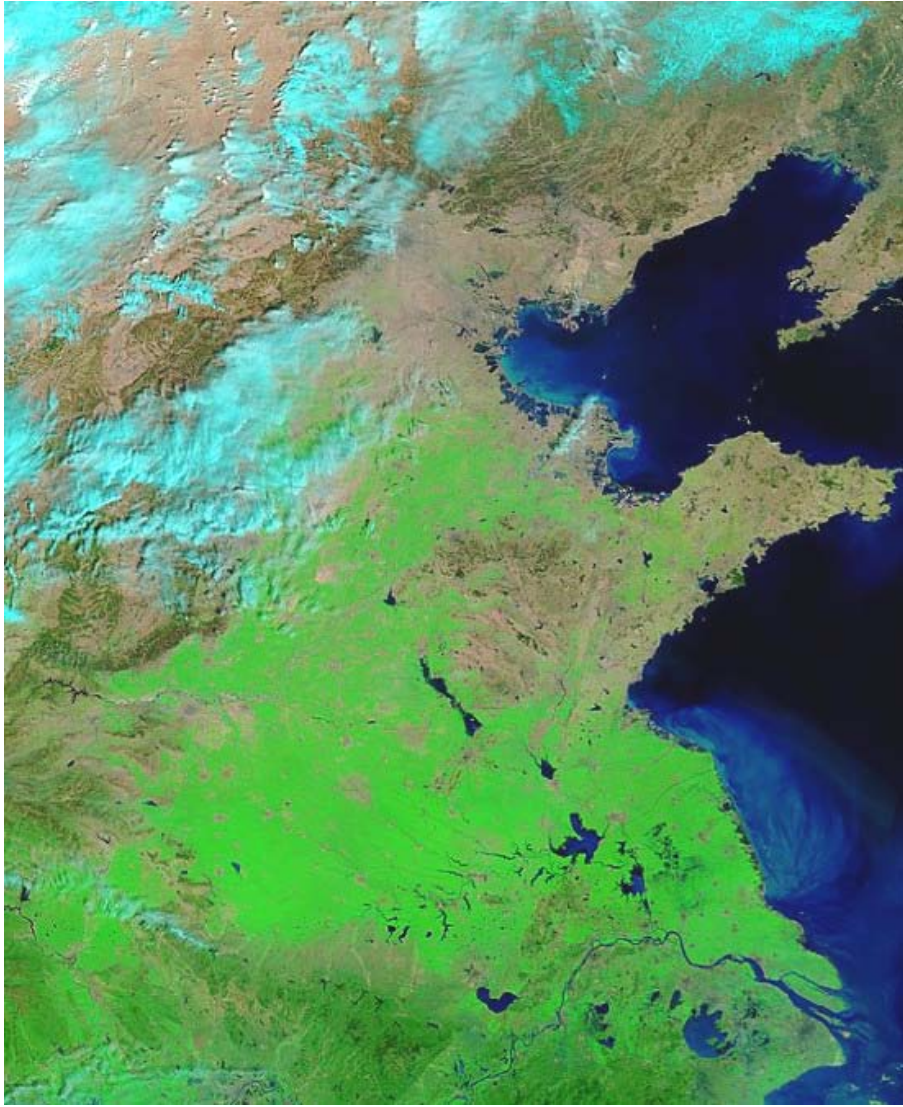
EASTERN ASIA  
Temperature Anomaly (°C)  
March 2013



CLIMATE PREDICTION CENTER, NOAA  
Computer generated contours  
Based on preliminary data



MODIS Imagery and NDVI image –April 7, 2013

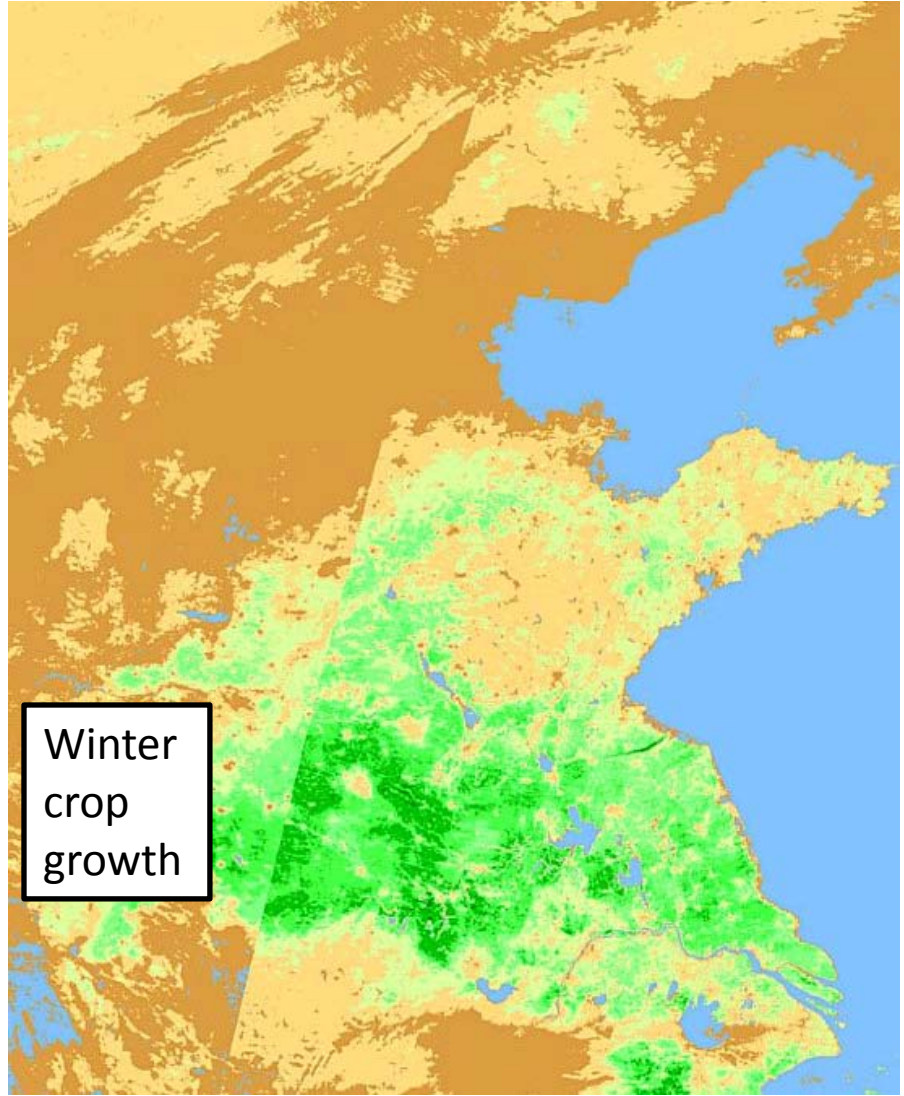
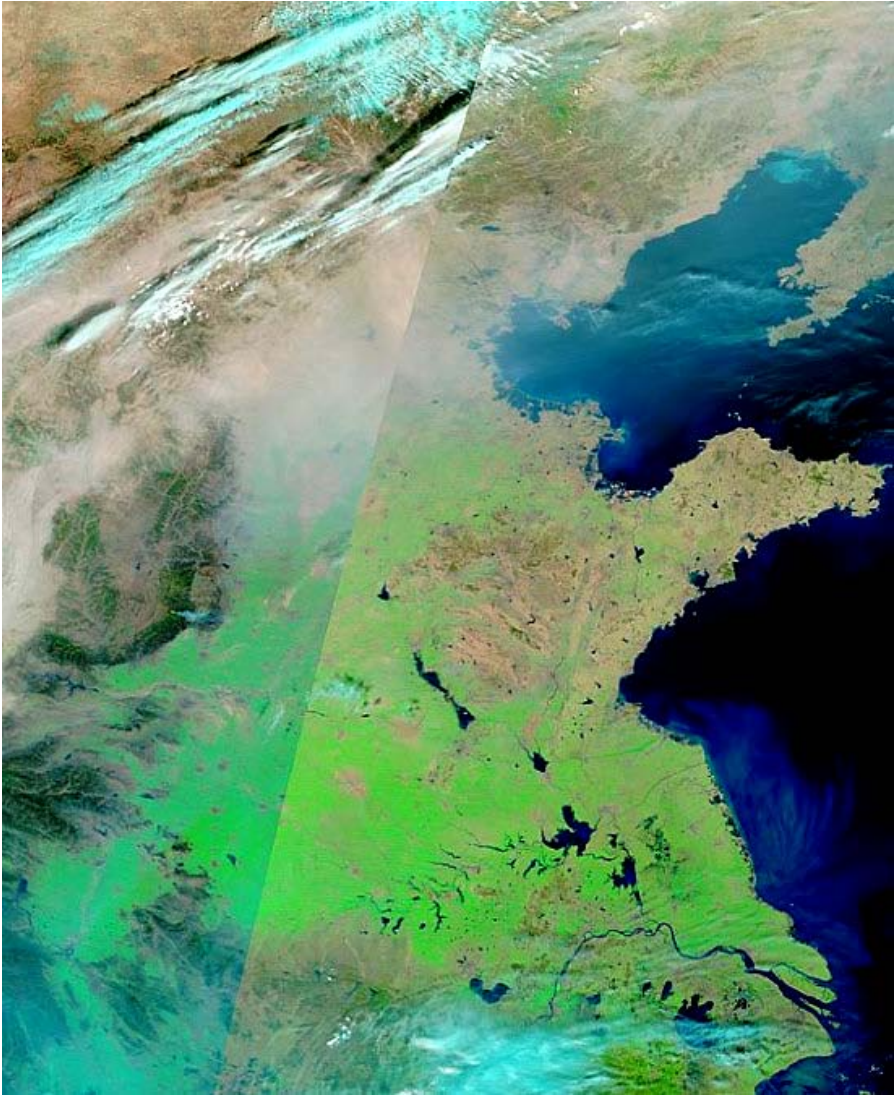


Winter  
crop  
growth

Winter crops are developing rapidly in April, soil moisture and temperatures are generally favorable. Drier than normal conditions in northern and western parts of the region.

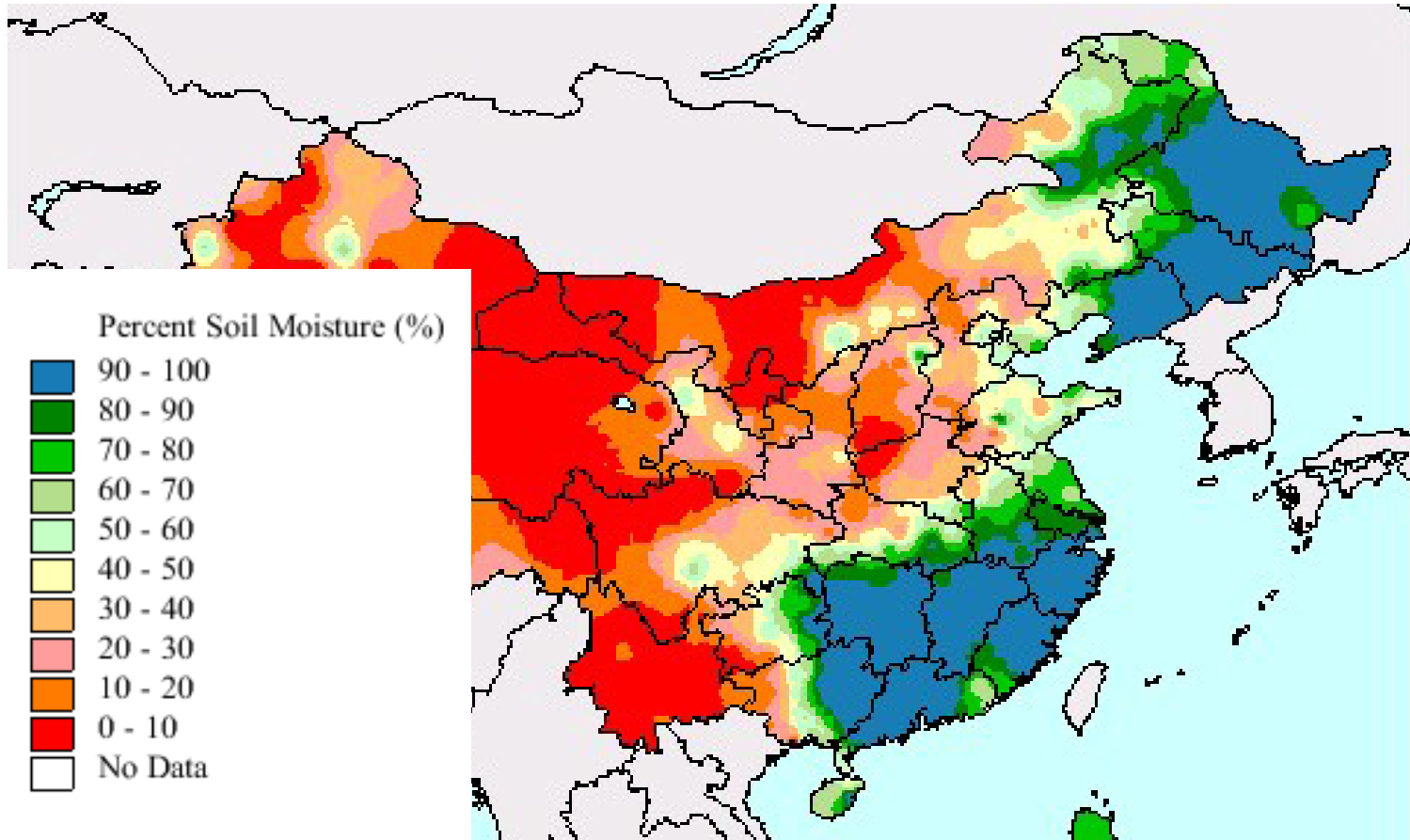


MODIS Imagery and NDVI image – March 9, 2013



Winter crops are coming out of dormancy on the North China Plain. Water level in lakes is good. No sign of flooding. Hazy appearance due in part to seasonal sand storms.

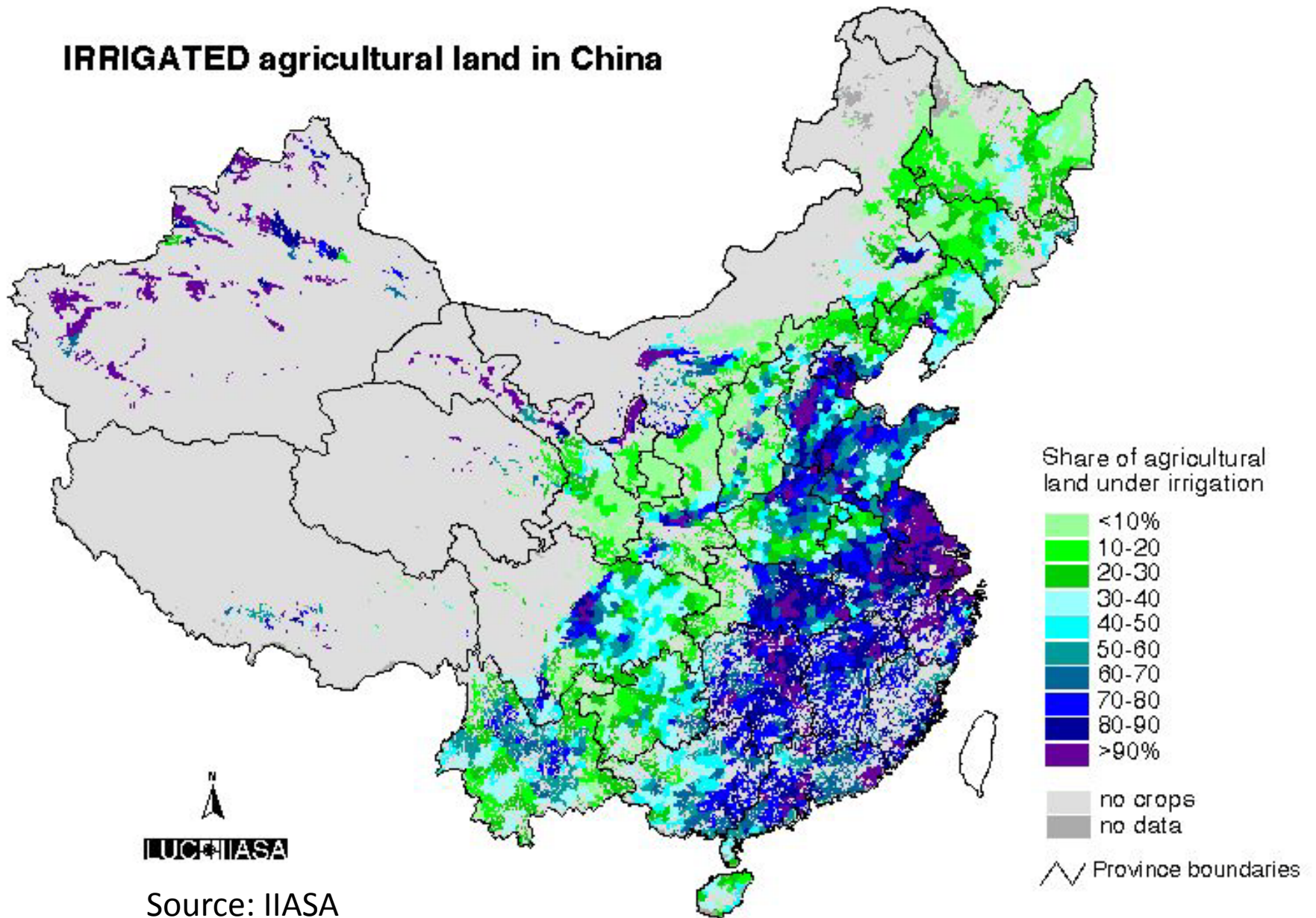
Percent Soil Moisture – March 31, 2013



Southeast and Northeast China – wet  
Western China – dry



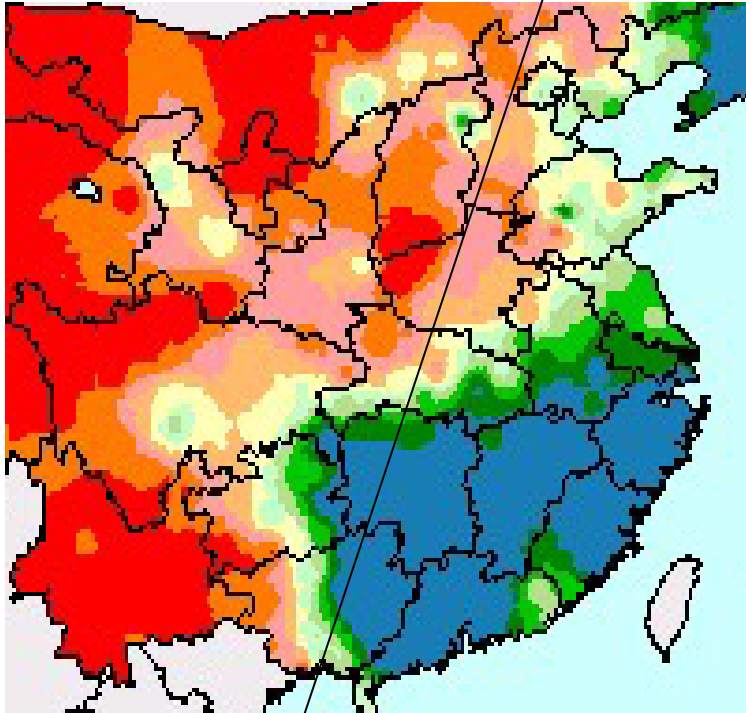
## IRRIGATED agricultural land in China



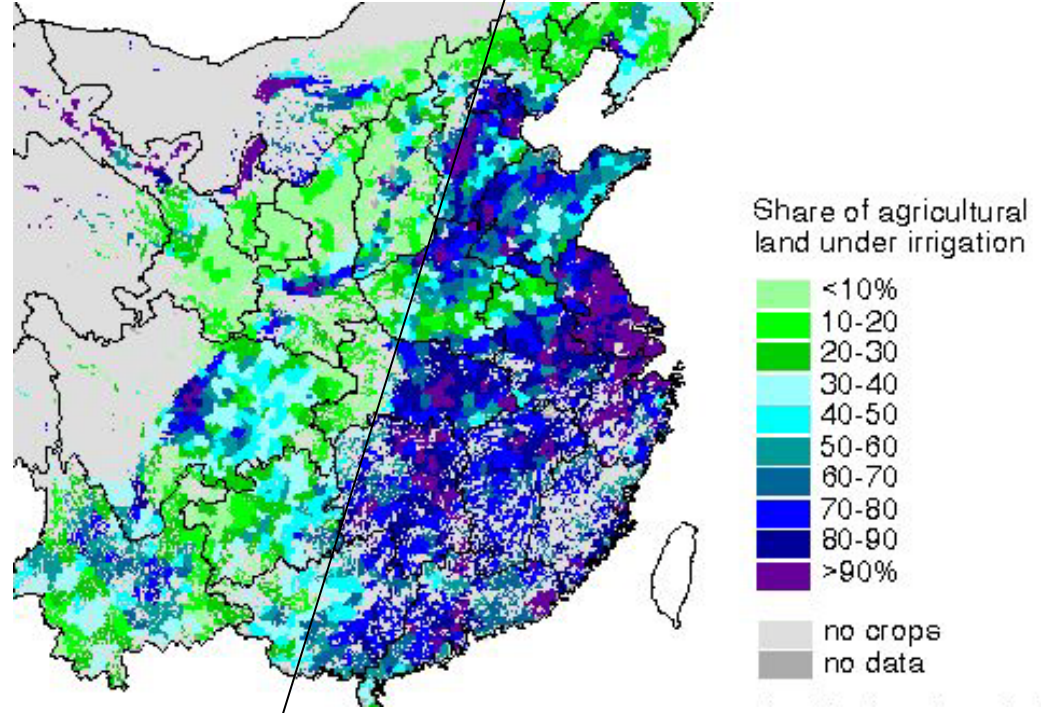
IIASA

Source: IIASA

Percent soil moisture – 31 Mar 13



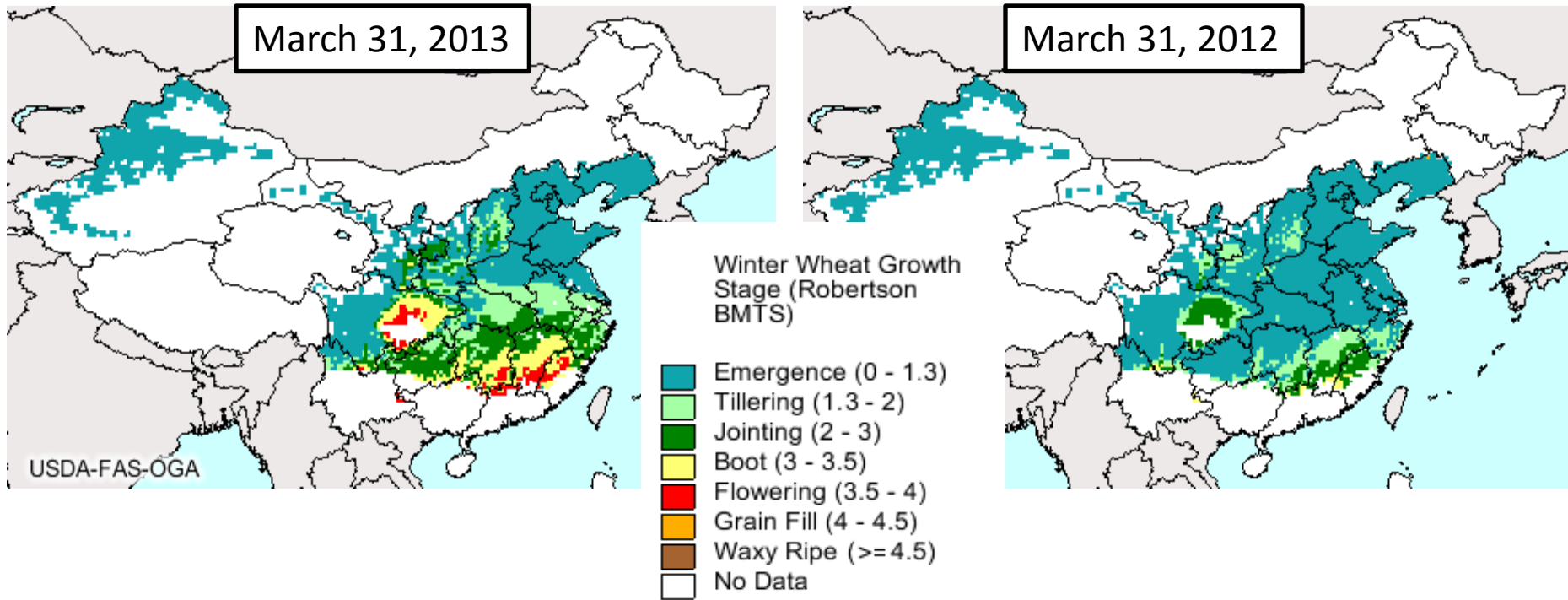
Irrigated agricultural land in China



Irrigation reduces the impact of drought

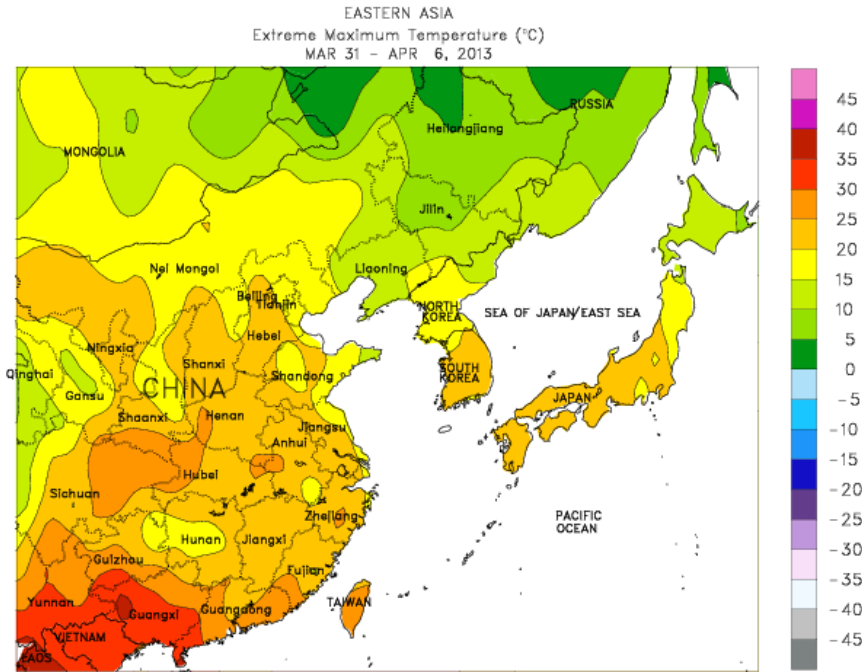


## Winter Wheat Crop Calendar – March 31, 2013 vs 2012

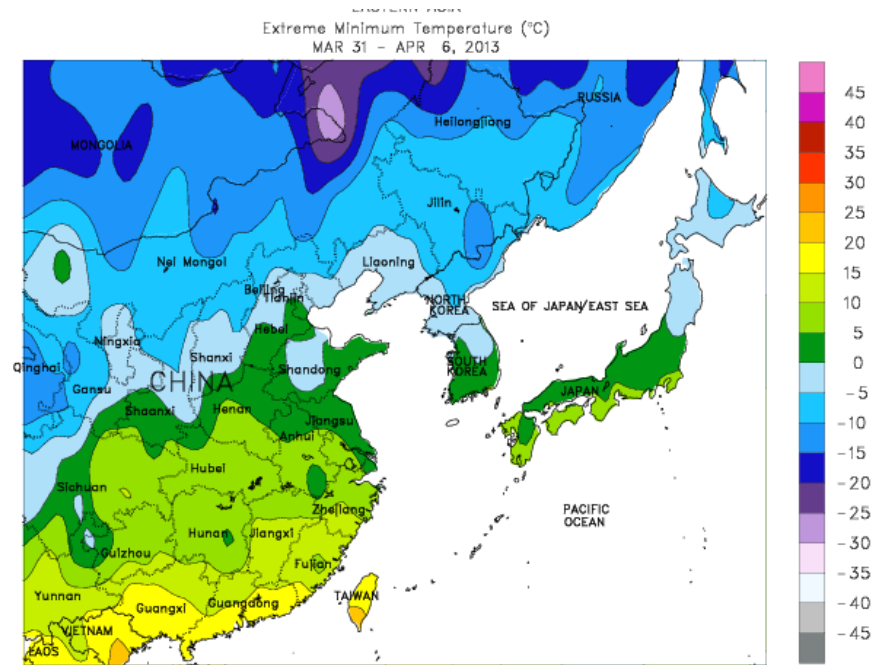


Warm and dry weather in March 2013 led to rapid wheat development

## Weekly Temperature Maps (March 31 – April 6, 2013)



High temperatures reached the mid-20's C (70's F) as far north as Beijing, favoring winter wheat growth.

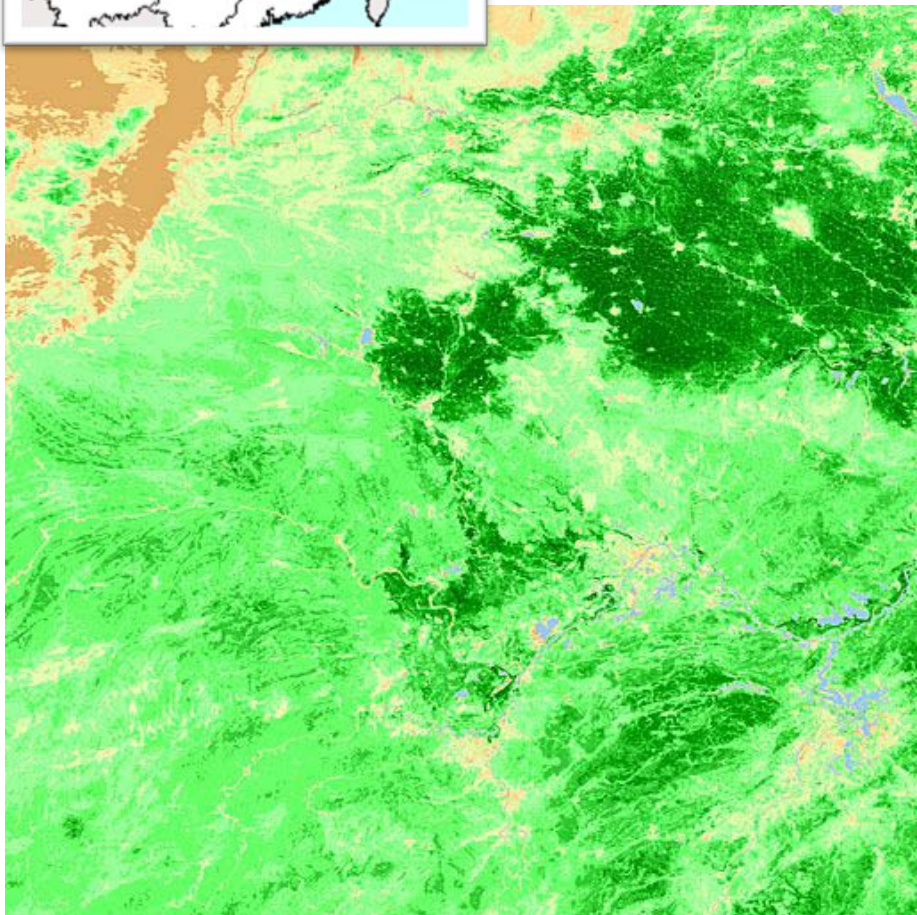
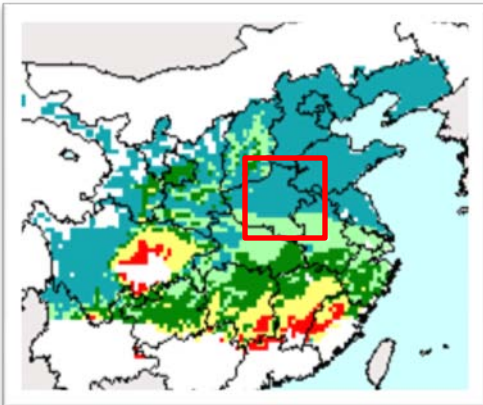


Frost was limited to high elevations and northern extremes of the winter wheat growing region.

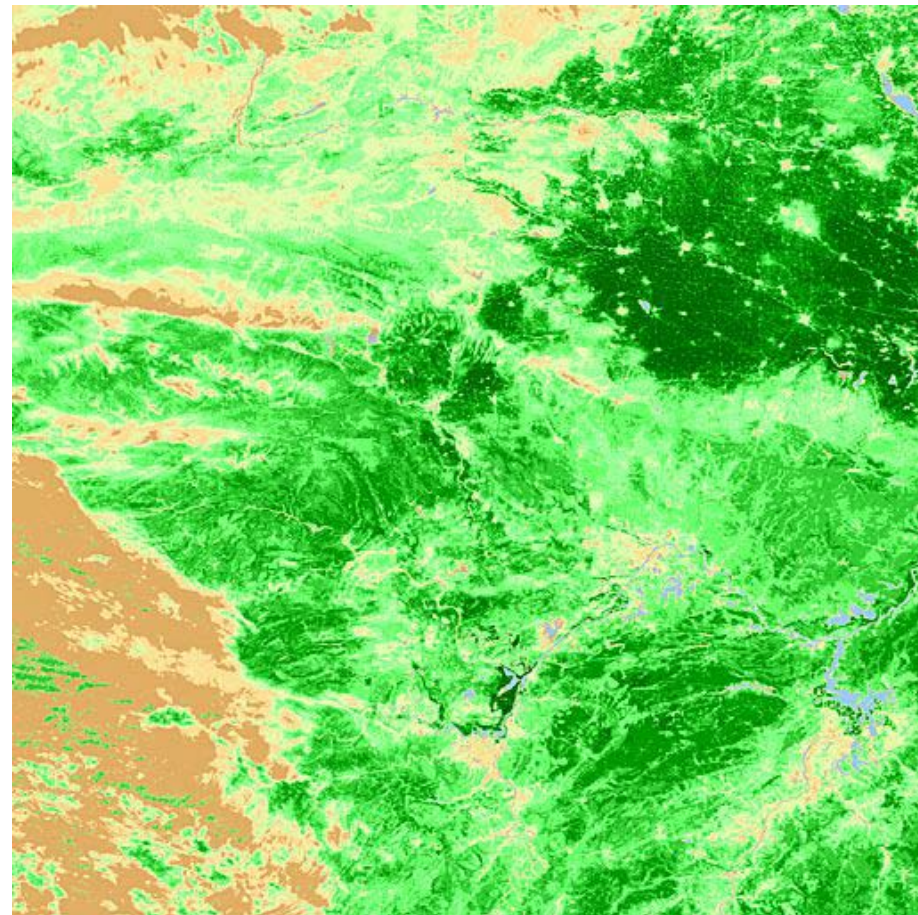


MODIS NDVI image –April 1, 2012 and April 7, 2013

Winter wheat calendar in 2013 is ahead of 2012.  
Higher vegetation values overall.



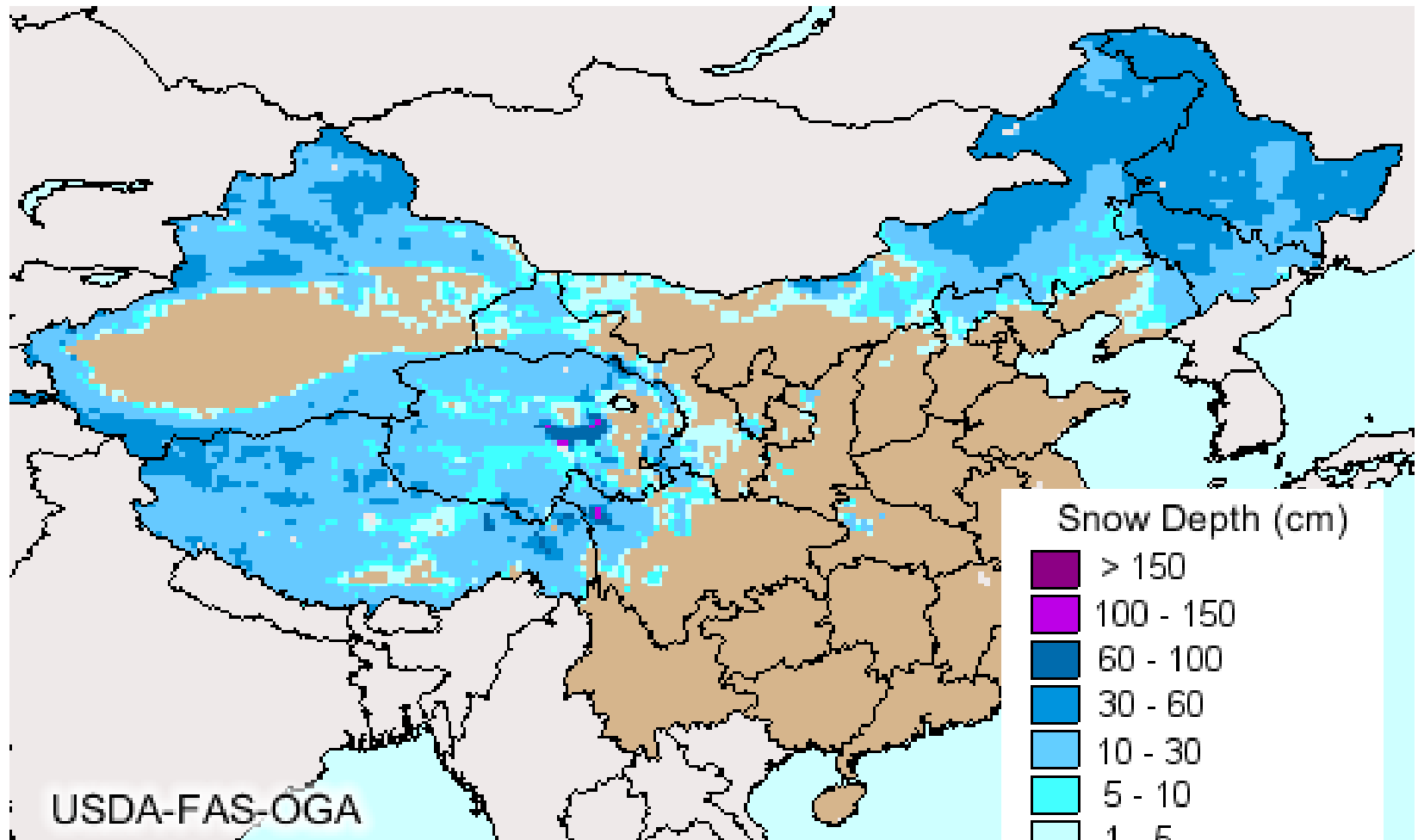
April 1, 2012



April 7, 2013

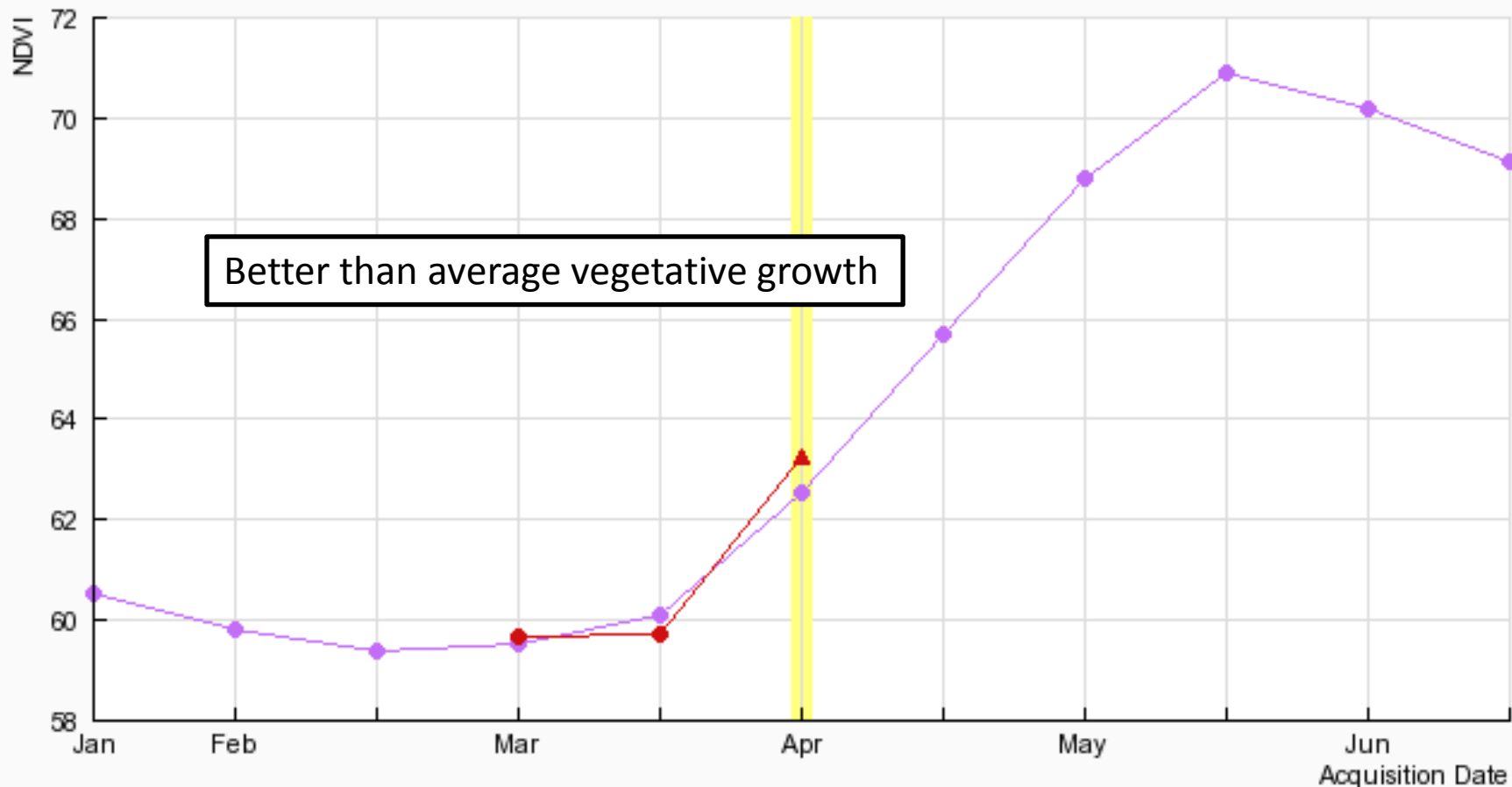


## Snow distribution - March 10, 2013



Snowfall in Northeast China and northern Xinjiang has been heavy this year. Damage to greenhouses, livestock losses, but the snow will boost soil moisture for summer crops.

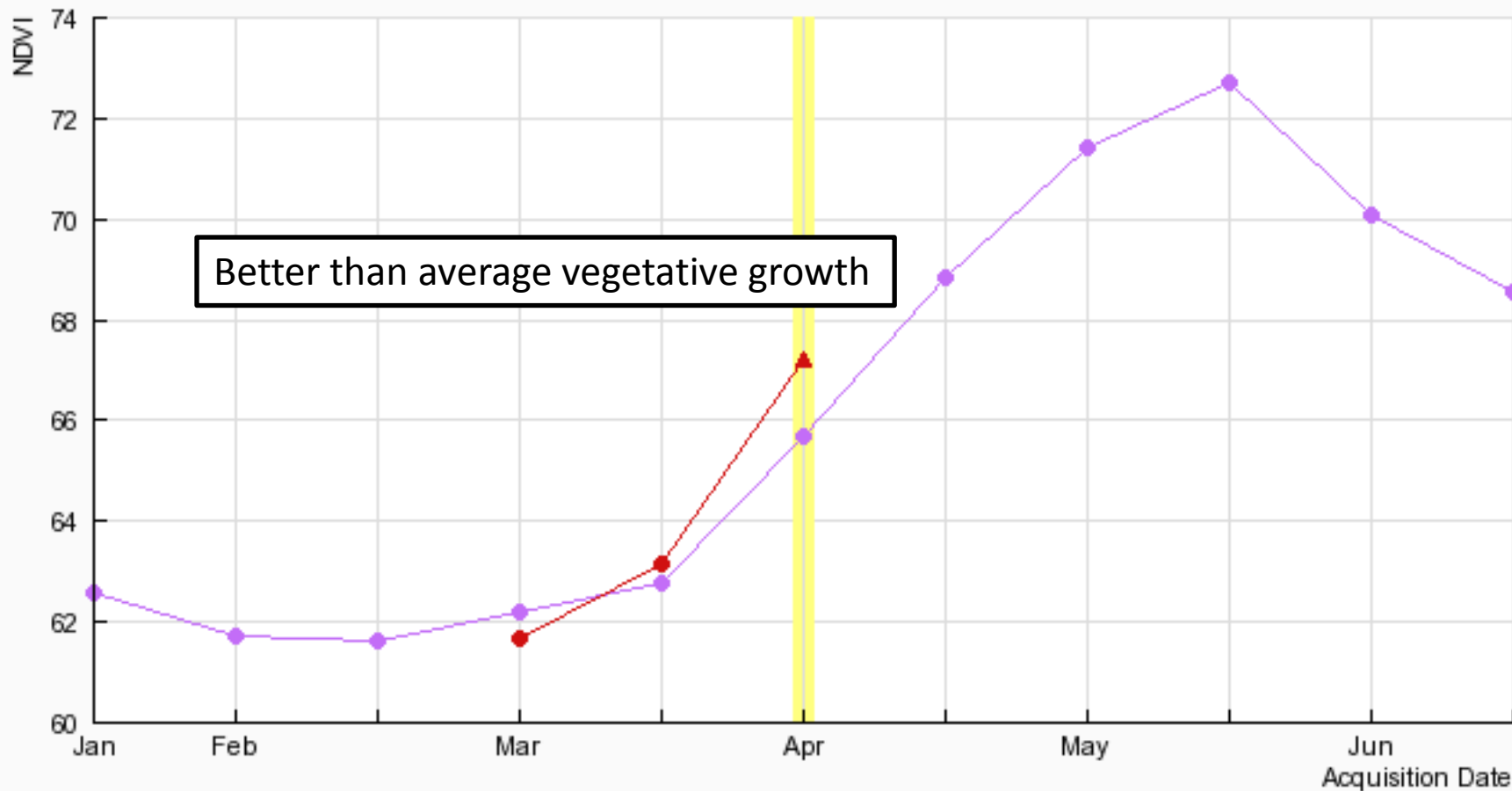
# MODIS NDVI (Terra) (MOD44 16-day) : Hebei



Source: USDA/NASA/UMD GLAM project  
Region: China, East  
Date Range: 2013-Mar-22 to Apr-06 (FAS NRT LANCE)  
Shape: China - Hebei  
Detail Point: 40.09059 110.24681  
Water Mask: Standard (MOD12)

◆ Mean (2000-2013)  
▲ 2013

# MODIS NDVI (Terra) (MOD44 16-day) : Shandong

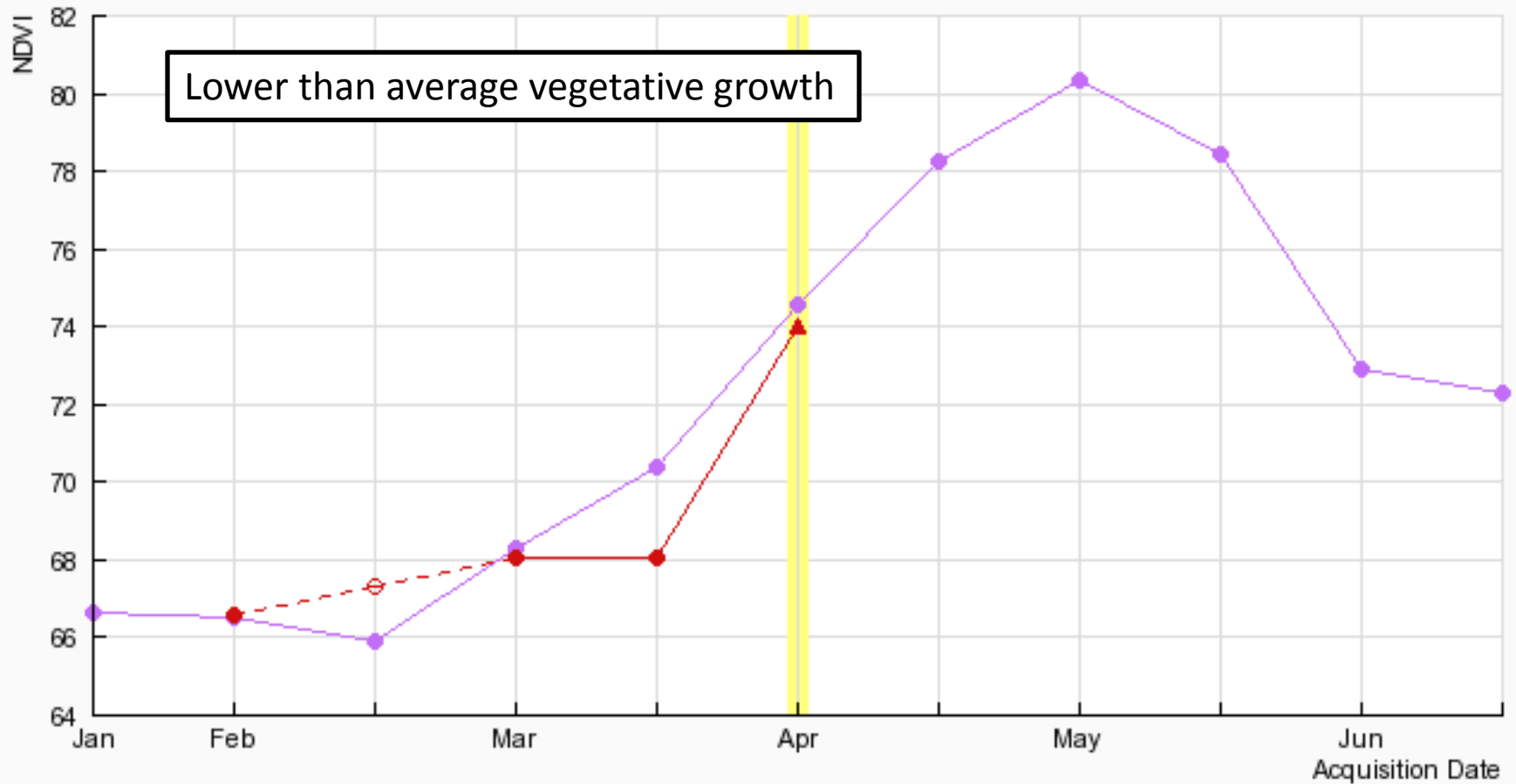


Source: USDA/NASA/UMD GLAM project  
Region: China, East  
Date Range: 2013-Mar-22 to Apr-06 (FAS NRT LANCE)  
Shape: China - Shandong  
Detail Point: 38.26722 114.84134  
Water Mask: Standard (MOD12)

◆ Mean (2000-2013)  
▲ 2013



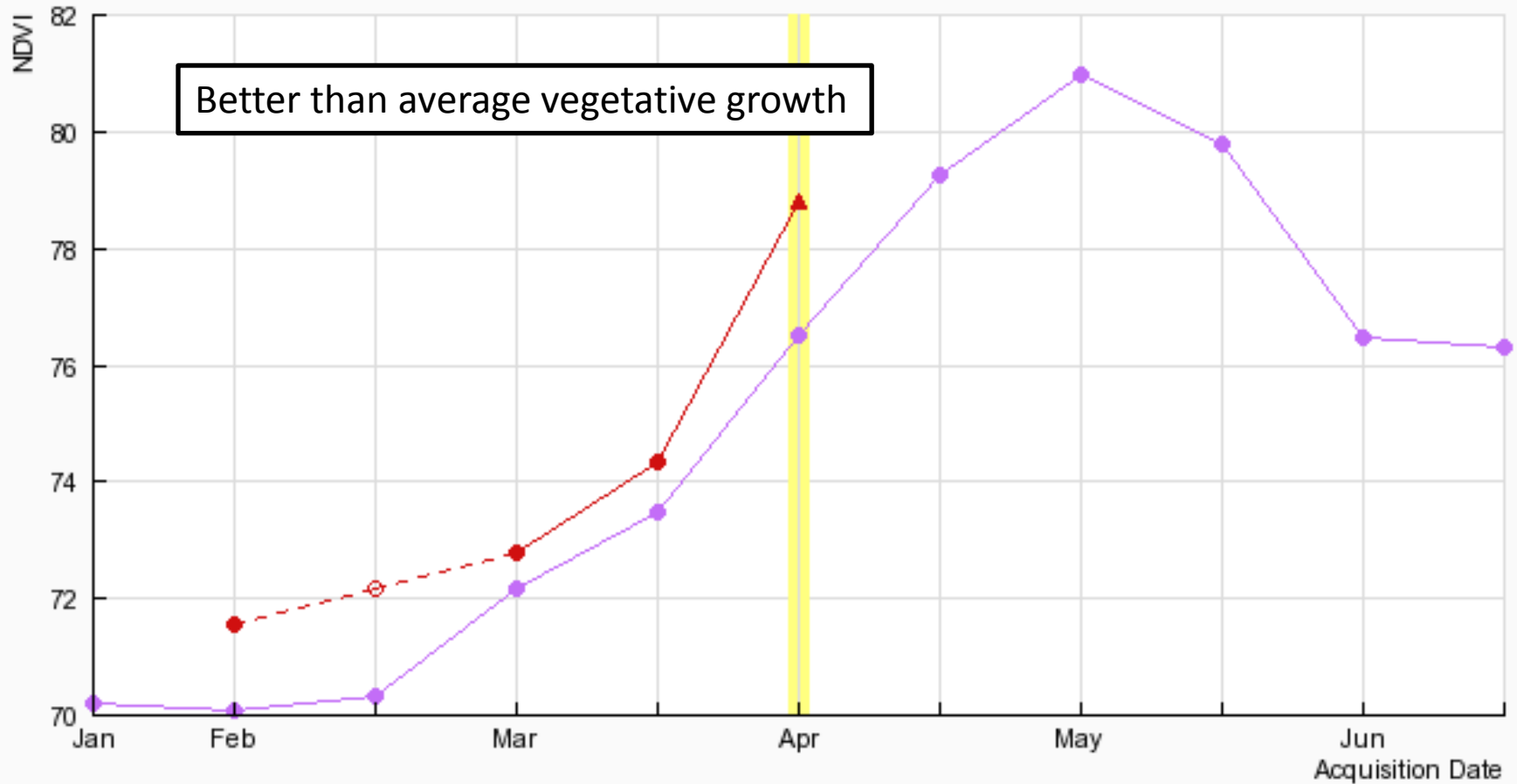
# MODIS NDVI (Terra) (MOD44 16-day) : Henan



Source: USDA/NASA/UMD GLAM project  
Region: China, East  
Date Range: 2013-Mar-22 to Apr-06 (FAS NRT LANCE)  
Shape: China - Henan  
Detail Point: 36.35616 110.33580  
Water Mask: Standard (MOD12)

◆ Mean (2000-2013)  
▲ 2013

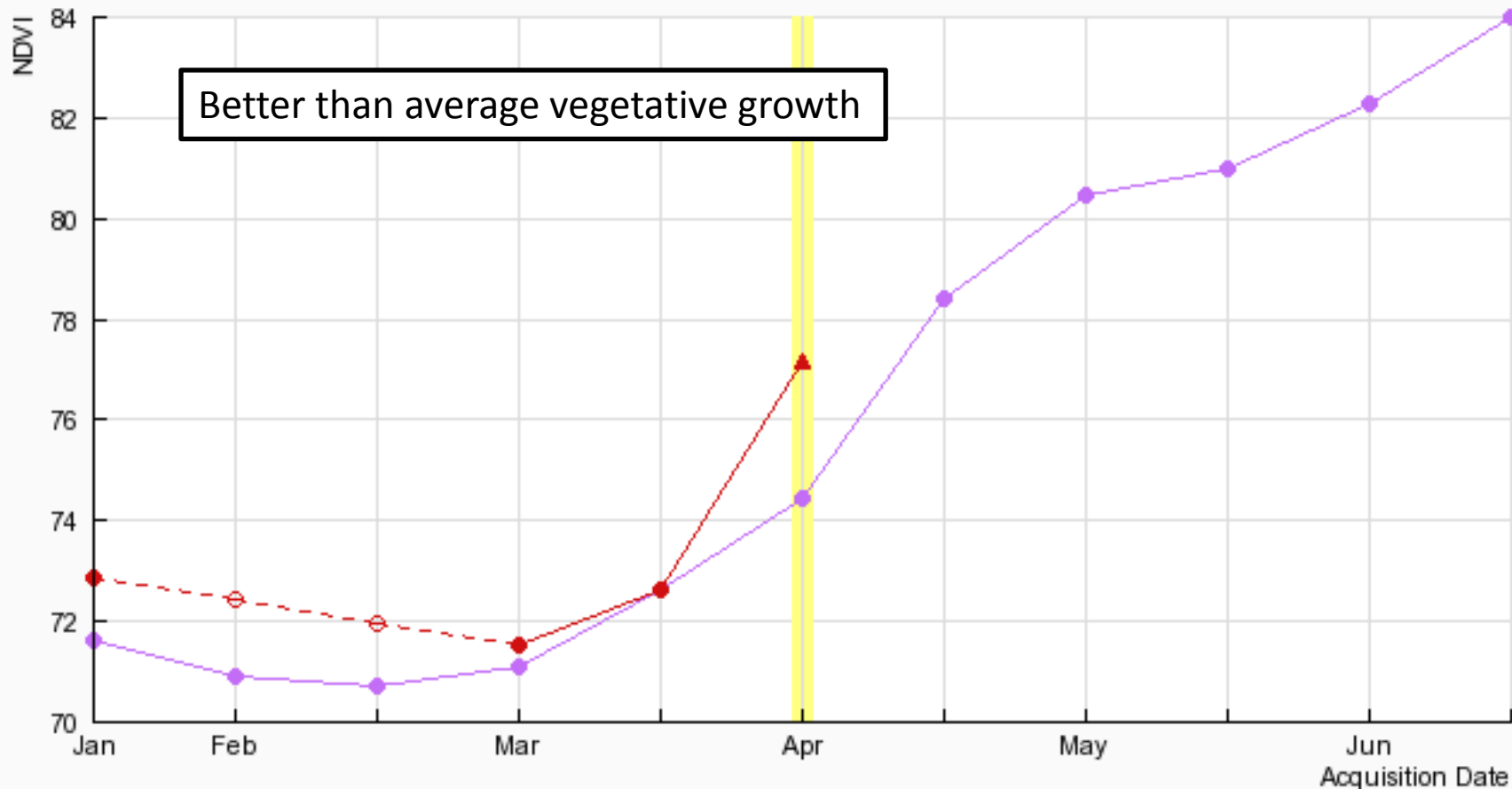
# MODIS NDVI (Terra) (MOD44 16-day) : Anhui



Source: USDA/NASA/UMD GLAM project  
Region: China, East  
Date Range: 2013-Mar-22 to Apr-06 (FAS NRT LANCE)  
Shape: China - Anhui  
Detail Point: 34.64745 114.87575  
Water Mask: Standard (MOD12)

◆ Mean (2000-2013)  
▲ 2013

# MODIS NDVI (Terra) (MOD44 16-day) : Hubei

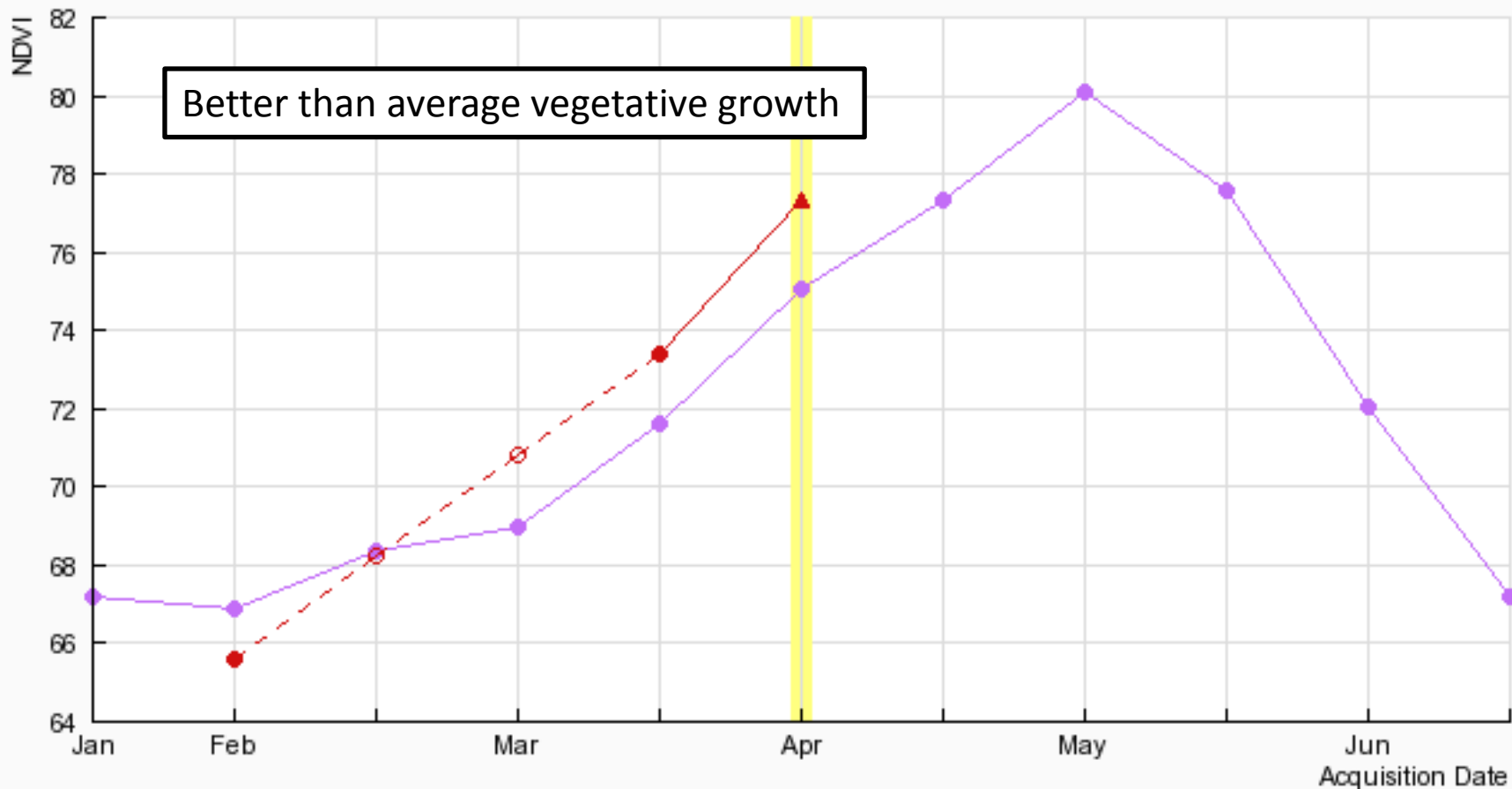


Source: USDA/NASA/UMD GLAM project  
Region: China, East  
Date Range: 2013-Mar-22 to Apr-06 (FAS NRT LANCE)  
Shape: China - Hubei  
Detail Point: 33.26924 108.37575  
Water Mask: Standard (MOD12)

◆ Mean (2000-2013)  
▲ 2013



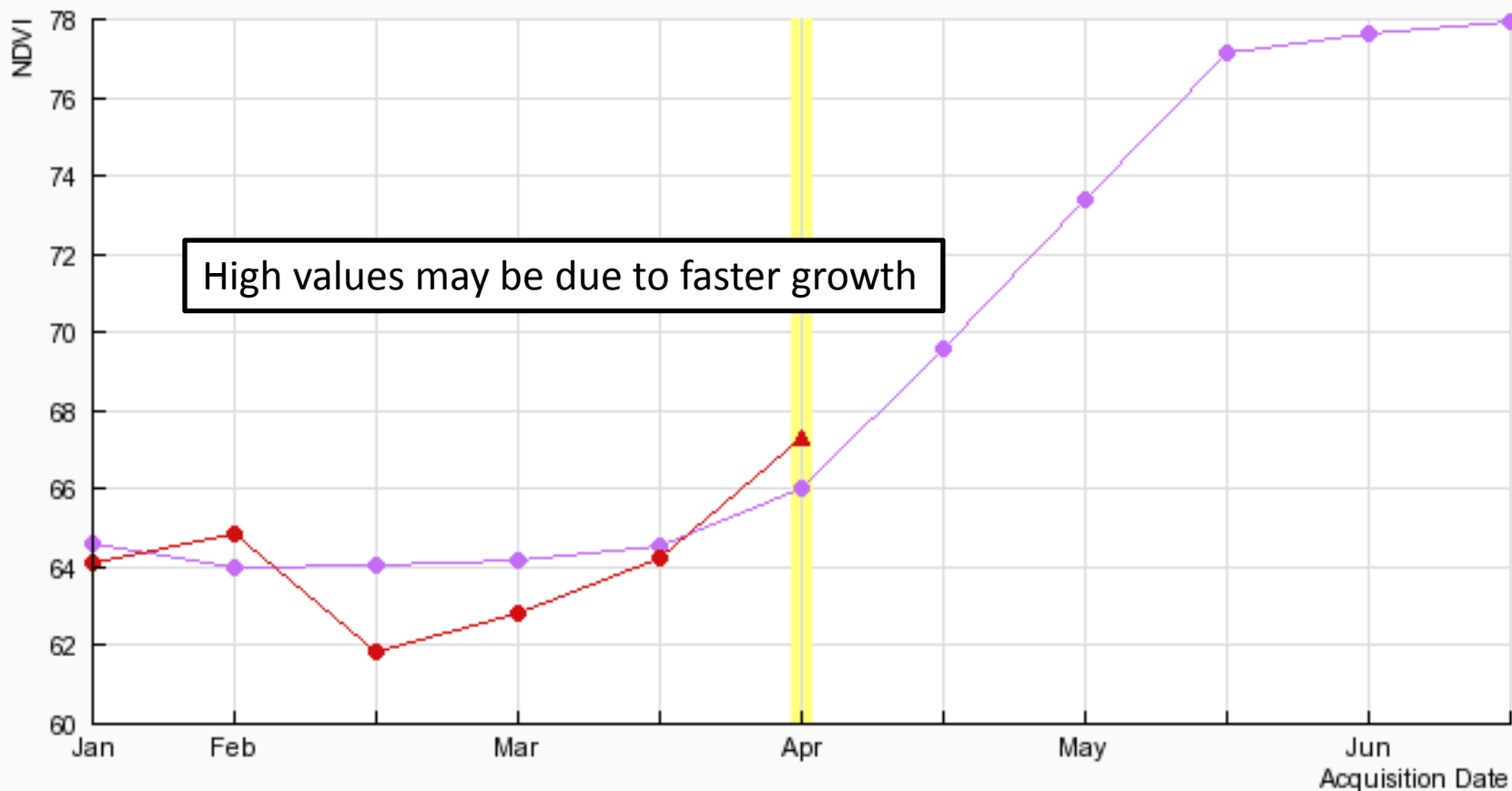
# MODIS NDVI (Terra) (MOD44 16-day) : Jiangsu



Source: USDA/NASA/UMD GLAM project  
Region: China, East  
Date Range: 2013-Mar-22 to Apr-06 (FAS NRT LANCE)  
Shape: China - Jiangsu  
Detail Point: 35.11510 116.37702  
Water Mask: Standard (MOD12)

◆ Mean (2000-2013)  
▲ 2013

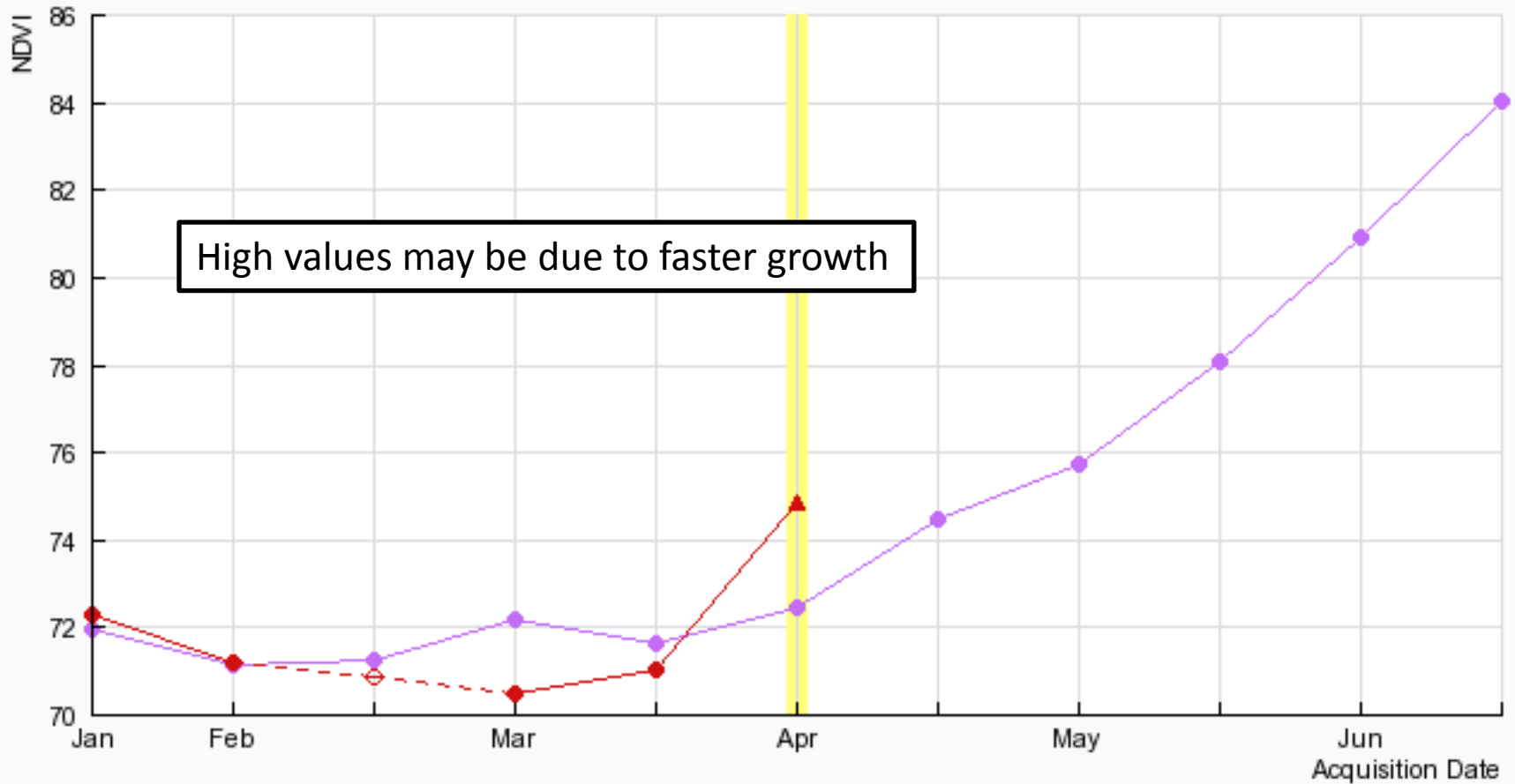
# MODIS NDVI (Terra) (MOD44 16-day) : Shaanxi



Source: USDA/NASA/UMD GLAM project  
Region: China, East  
Date Range: 2013-Mar-22 to Apr-06 (FAS NRT LANCE)  
Shape: China - Shaanxi  
Detail Point: 39.58472 107.44960  
Water Mask: Standard (MOD12)

◆ Mean (2000-2013)  
▲ 2013

# MODIS NDVI (Terra) (MOD44 16-day) : Sichuan

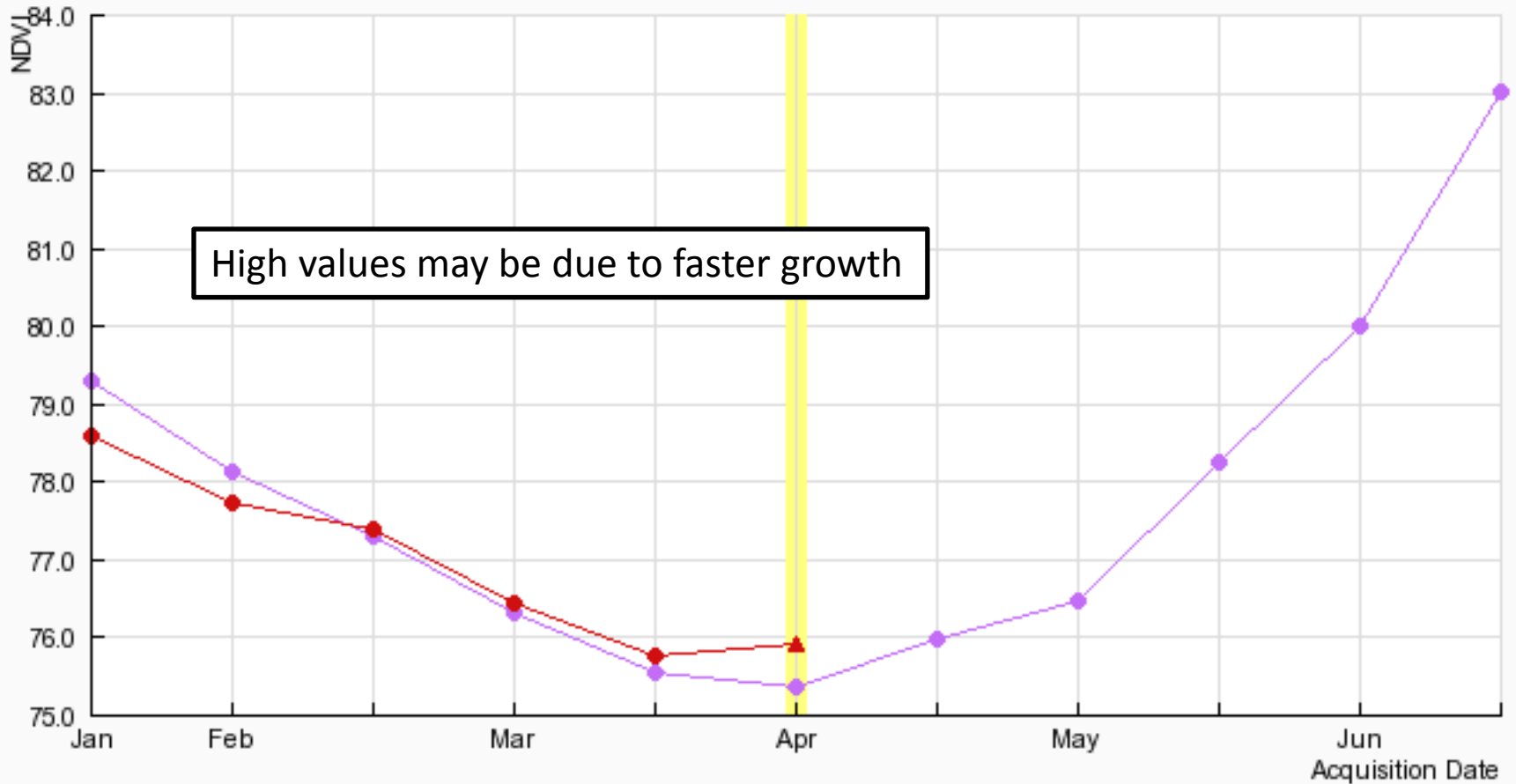


Source: USDA/NASA/UMD GLAM project  
Region: China, East  
Date Range: 2013-Mar-22 to Apr-06 (FAS NRT LANCE)  
Shape: China - Sichuan  
Detail Point: 34.25175 102.21269  
Water Mask: Standard (MOD12)

◆ Mean (2000-2013)  
▲ 2013



# MODIS NDVI (Terra) (MOD44 16-day) : Yunnan



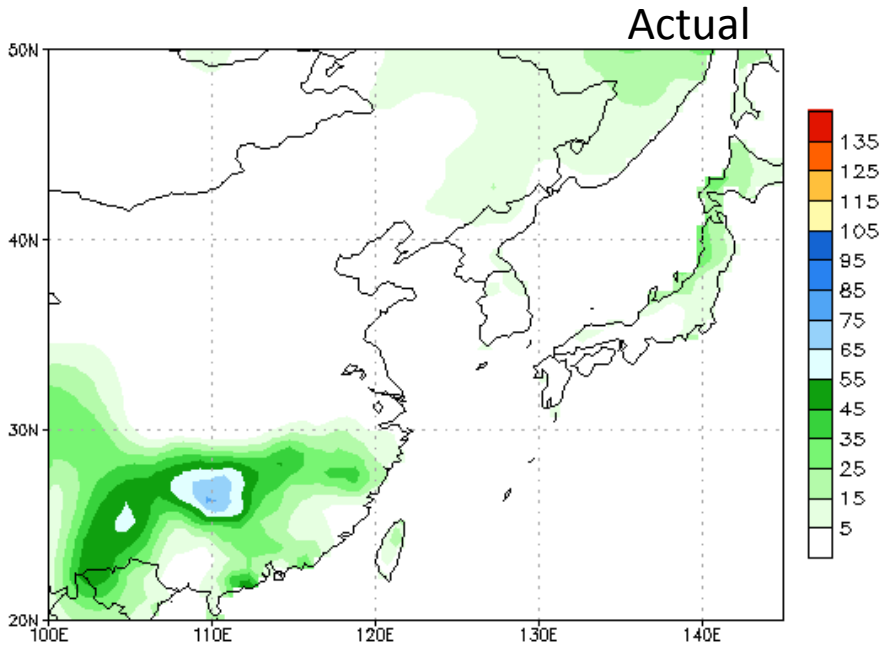
Source: USDA/NASA/UMD GLAM project  
Region: China, East  
Date Range: 2013-Mar-22 to Apr-06 (FAS NRT LANCE)  
Shape: China - Yunnan  
Detail Point: 29.22455 98.39480  
Water Mask: Standard (MOD12)

◆ Mean (2000-2013)  
▲ 2013

# Weekly Rainfall Forecast (Climate Prediction Center, NOAA)

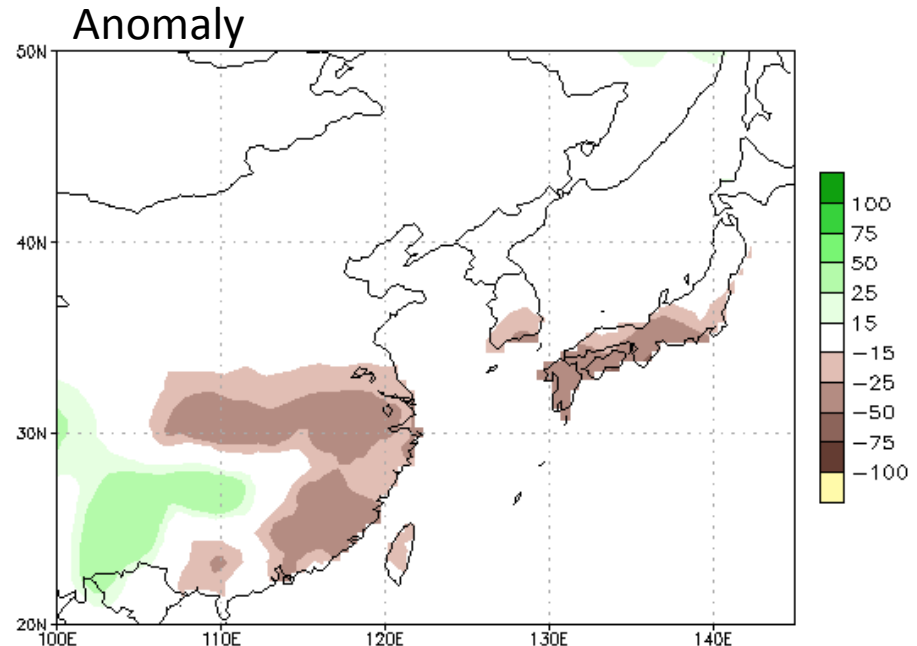
April 9 – 15, 2013

NCEP GFS Ensemble Forecast 1–7 Day Precipitation (mm)  
from: 09Apr2013  
09Apr2013–15Apr2013 Accumulation



Bias correction based on last 30-day forecast error

NCEP GFS Ensemble Forecast 1–7 Day Precipitation (mm)  
from: 09Apr2013  
09Apr2013–15Apr2013 Anomaly



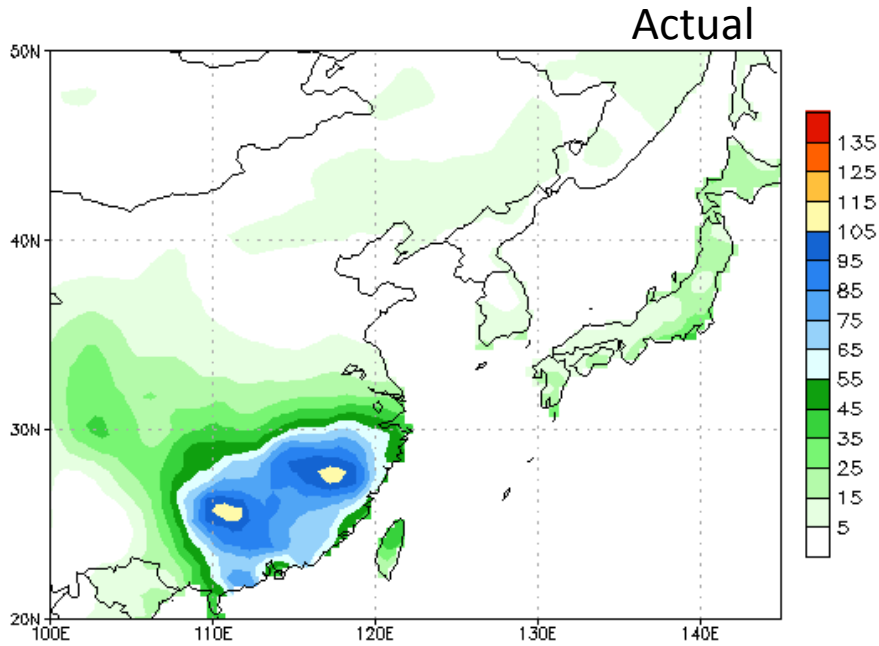
Bias correction based on last 30-day forecast error  
CPC Unified Precip Climatology (1981–2010)

Favorable rain in SW China

# Weekly Rainfall Forecast (Climate Prediction Center, NOAA)

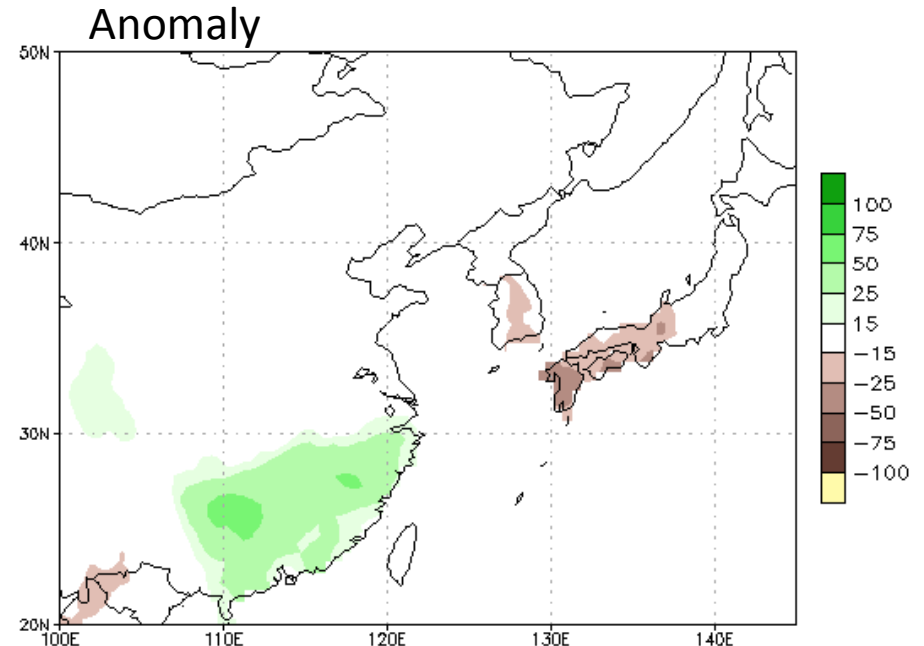
April 16 – 22, 2013

NCEP GFS Ensemble Forecast 8–14 Day Precipitation (mm)  
from: 09Apr2013  
16Apr2013–22Apr2013 Accumulation



Bias correction based on last 30-day forecast error

NCEP GFS Ensemble Forecast 8–14 Day Precipitation (mm)  
from: 09Apr2013  
16Apr2013–22Apr2013 Anomaly



Bias correction based on past 30-day forecast error  
CPC Unified Precip Climatology (1981–2010)

Rain returns to Southeast China (early rice)