

FAS – Office of Global Analysis (OGA)  
United States Department of Agriculture (USDA)  
International Operational Agriculture Monitoring Program



**January Summary**

**January 29, 2010**

- (1) Above normal precipitation in the MY 2010/11 winter grain growing season has helped create the best early grain growing conditions in recent years, especially when compared to the drought-affected crops of the past two seasons. Wheat and barley crops are showing strong emergence and early development in all provinces of the country. There are still some sizable under-performing areas in the rainfed growing regions of northeast Al-Hassakah, but these areas may have been planted late and might show improvement in February. Al-Hassakah and Ar-Raqqah produce 50.8% of Syria's wheat crop, while Dier ez-Zor and Aleppo produce 45.7% of Syria's barley crop (Figures 25 and 26). A continuation of favorable rainfall and adequate irrigation supplies remain crucial to realizing the potential of winter grain production throughout Syria this year, however at this point the overall outlook is very encouraging.
- (2) The major winter grain producing areas of northern and eastern Syria have all received much higher rainfall to-date than the previous few growing seasons, and are currently running at normal to well-above normal precipitation levels (Figures 2, 3). This abundant moisture has created near-ideal conditions for crop establishment. Even minor producing crop regions in Deir ez Zor , Dar'a, and Suwayda have received above normal rainfall. Typically, the highest rainfall period for the country occurs from December-February, which means there is still ample opportunity to further improve regional crop moisture supplies and store soil moisture for later growth stages when rainfall may be less plentiful.
- (3) Surface soil moisture across much of the country is very high due to strong recent rains (Figure 4). Subsurface soil moisture is also building up in eastern provinces this month following very favorable rainfall (Figures 5). Although recent rainfall has been extremely beneficial to crops, it has not been sufficient to replenish the seriously diminished groundwater levels for the past two years of drought. This underlines the point that continued rainfall is necessary for the successful completion of the MY 2010/11 winter grain growing season.
- (4) A review of satellite-derived vegetative index data (NDVI) indicates that winter grain crops have emerged throughout the country, and are showing vigorous development compared to both the 6-year average and last year (Figures 6-14). This is especially true in much of Aleppo, Ar-Raqqah and portions of northern Al-Hassakah near the border with Turkey. Crop vegetative development is lower than normal, however, in winter crop regions of northern Deir ez-Zor (Figure 14) and a large east-west running strip of cropland in Al-Hassakah (Figures 11 and 12). These less well-developed areas may have been planted late this year, as farmers awaited adequate rainfall, or they may be in areas abandoned by farmers escaping falling groundwater tables and drought-related crop losses. The quality and widespread scope of grain crop emergence this year indicates that early grain crop potential is very high. Should rainfall continue to be supportive, near-record to record crop yields are possible.

- (5) Satellite-derived vegetative index time-series data (NDVI) shows vegetation density and development is nearing that observed in January of MY2006/07, the year used as a benchmark for a strong winter grains growing season and near-normal grain production (Figure 19). In portions of northeast Aleppo, NDVI values are actually higher than the benchmark year, indicating the potential for near-record to record crop yields.
- (6) MODIS satellite imagery over the country as a whole shows a definite improvement in crop growth compared with December and a huge improvement over conditions in January of 2009. AWIFS satellite imagery from late December also shows grain fields greening up as the young crops emerge in both irrigated and rainfed fields. (Figures 20, 21, and 22).
- (7) The NOAA Climate Prediction Center’s 7-day precipitation forecast (GFS) predicts continued moderate rainfall over north and western Syria while much of the south and east will remain dry. (Figure 24).

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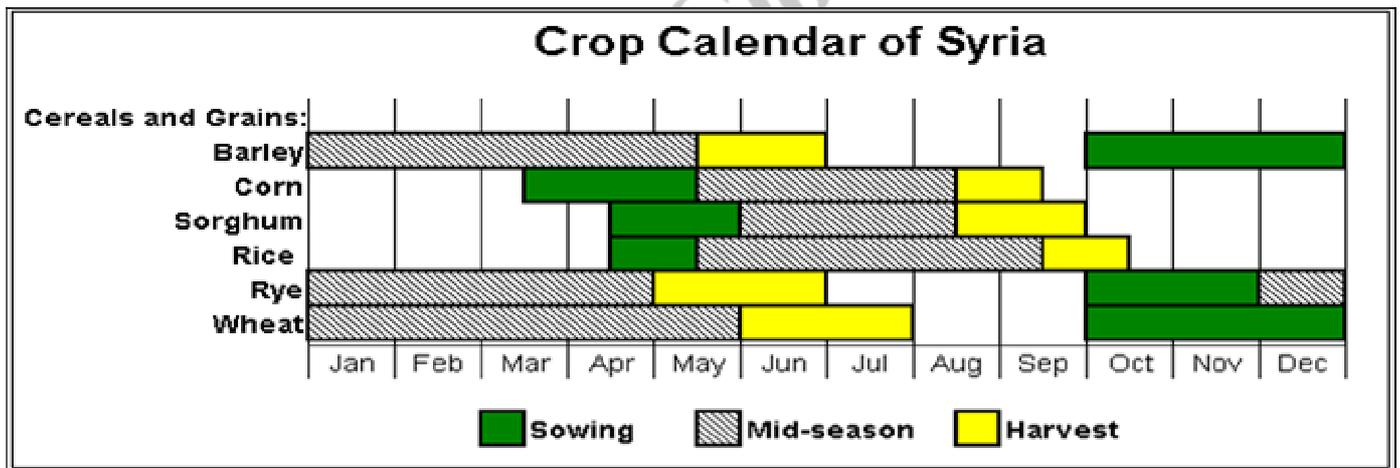


Figure 1. Crop Calendar of Syria. Data Source: USDA/FAS/PECAD, Crop Explorer

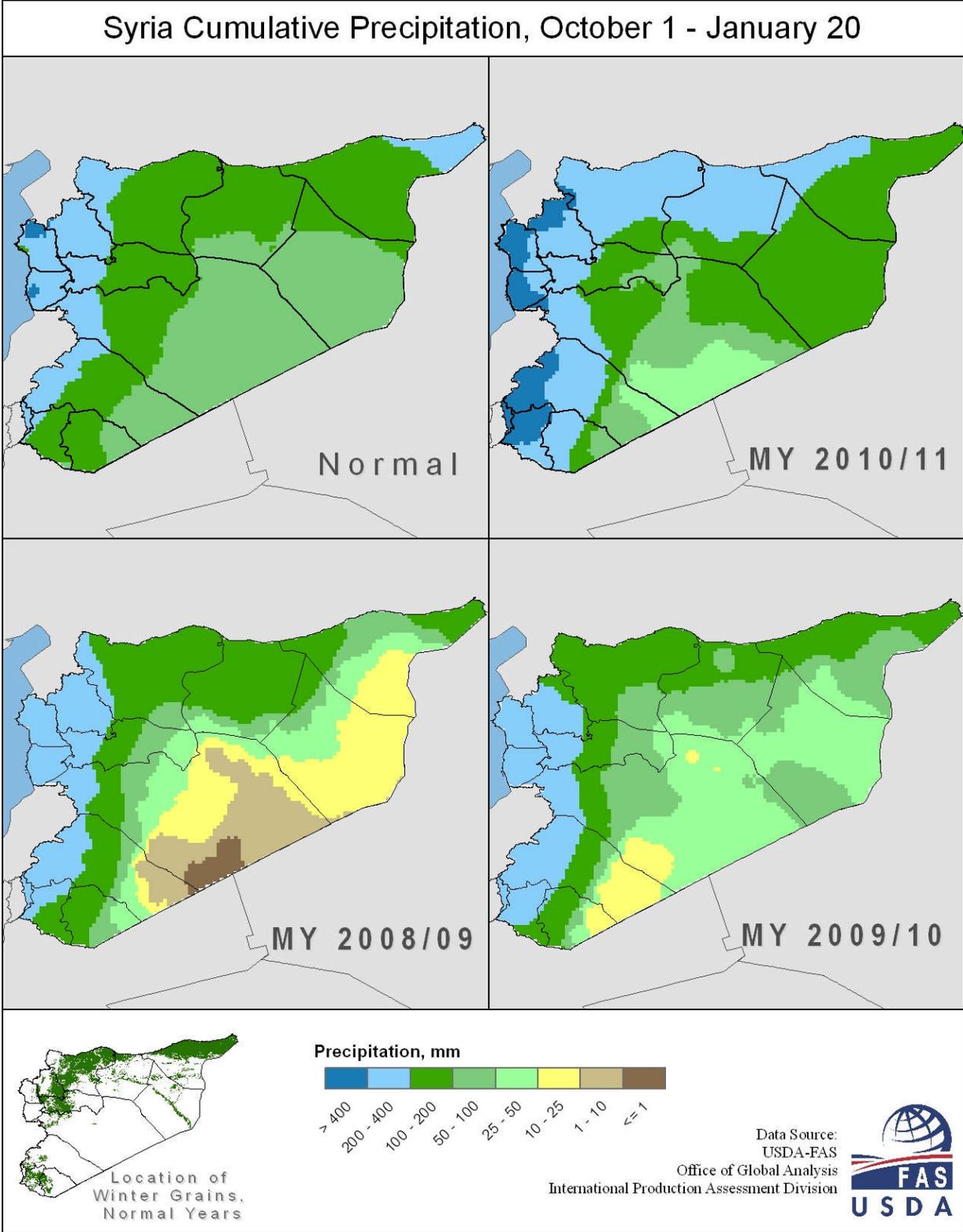


Figure 2. Precipitation in Syria. Data Source: CADRE

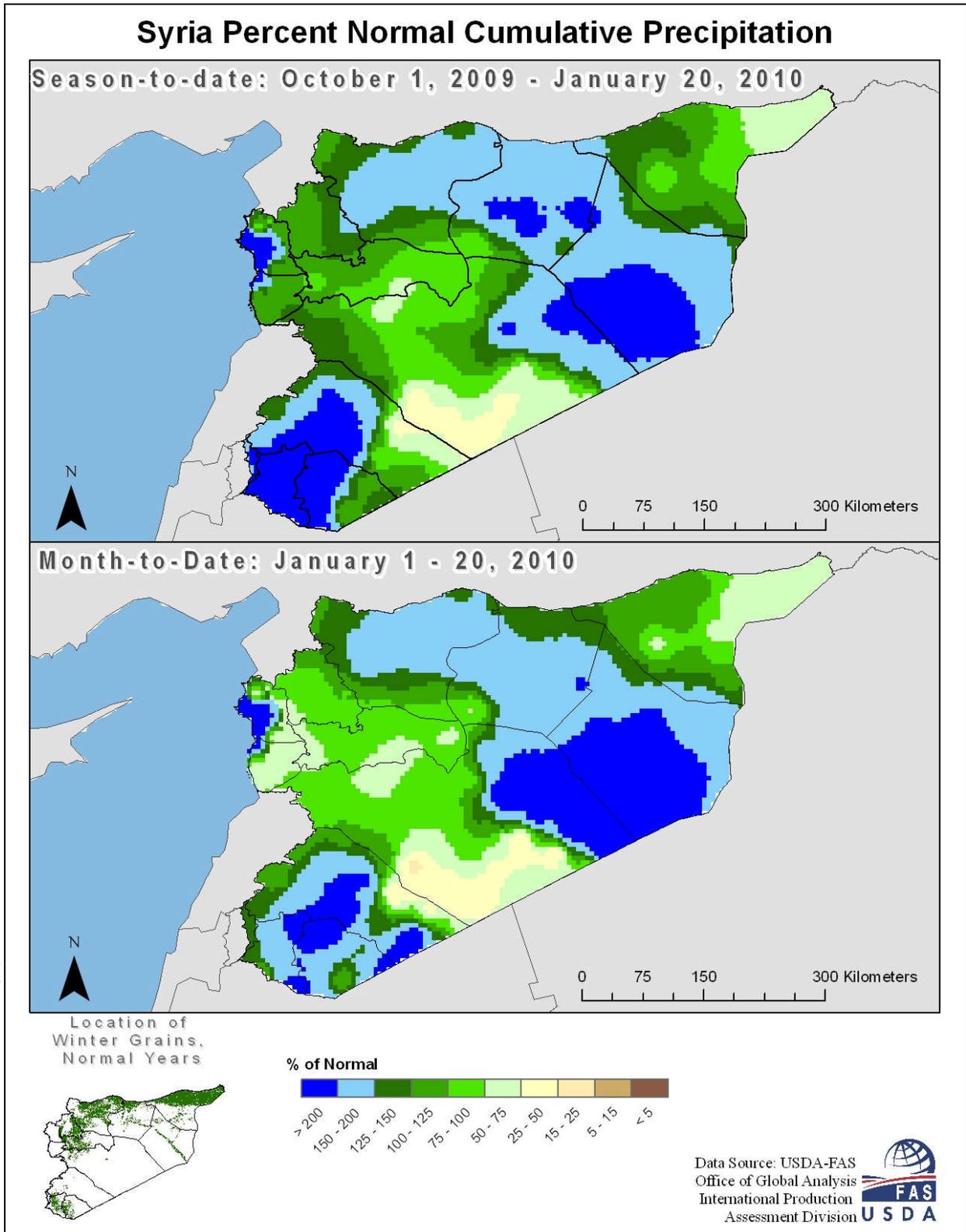


Figure 3. Percent Normal Cumulative Precipitation over Syria. *Source: CADRE AFWA.*

## Surface Soil Moisture December, 2009 to January, 2010

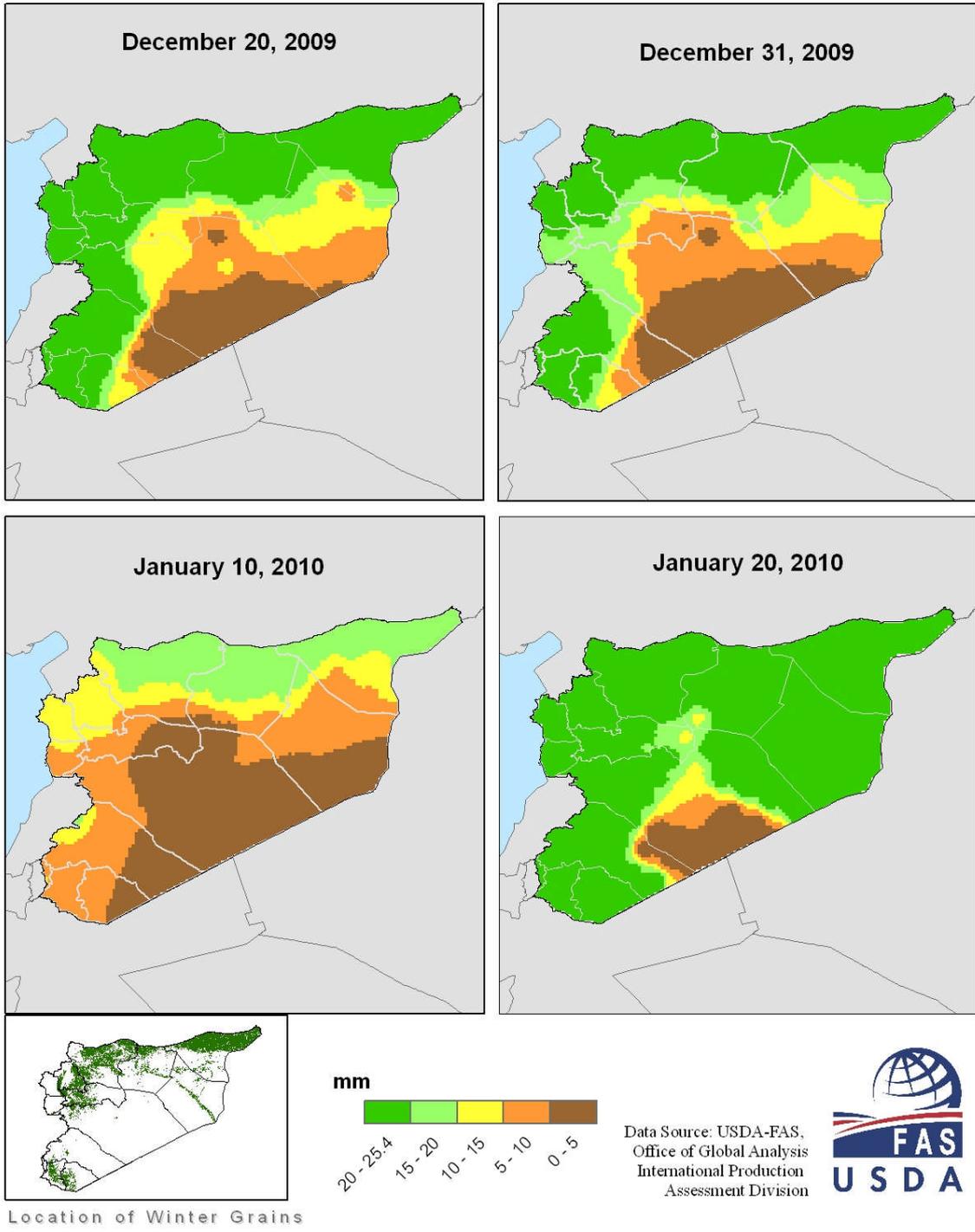


Figure 4. Surface Soil Moisture in Syria. *Data Source: CADRE*

### Subsurface Soil Moisture Content December, 2009 to January, 2010

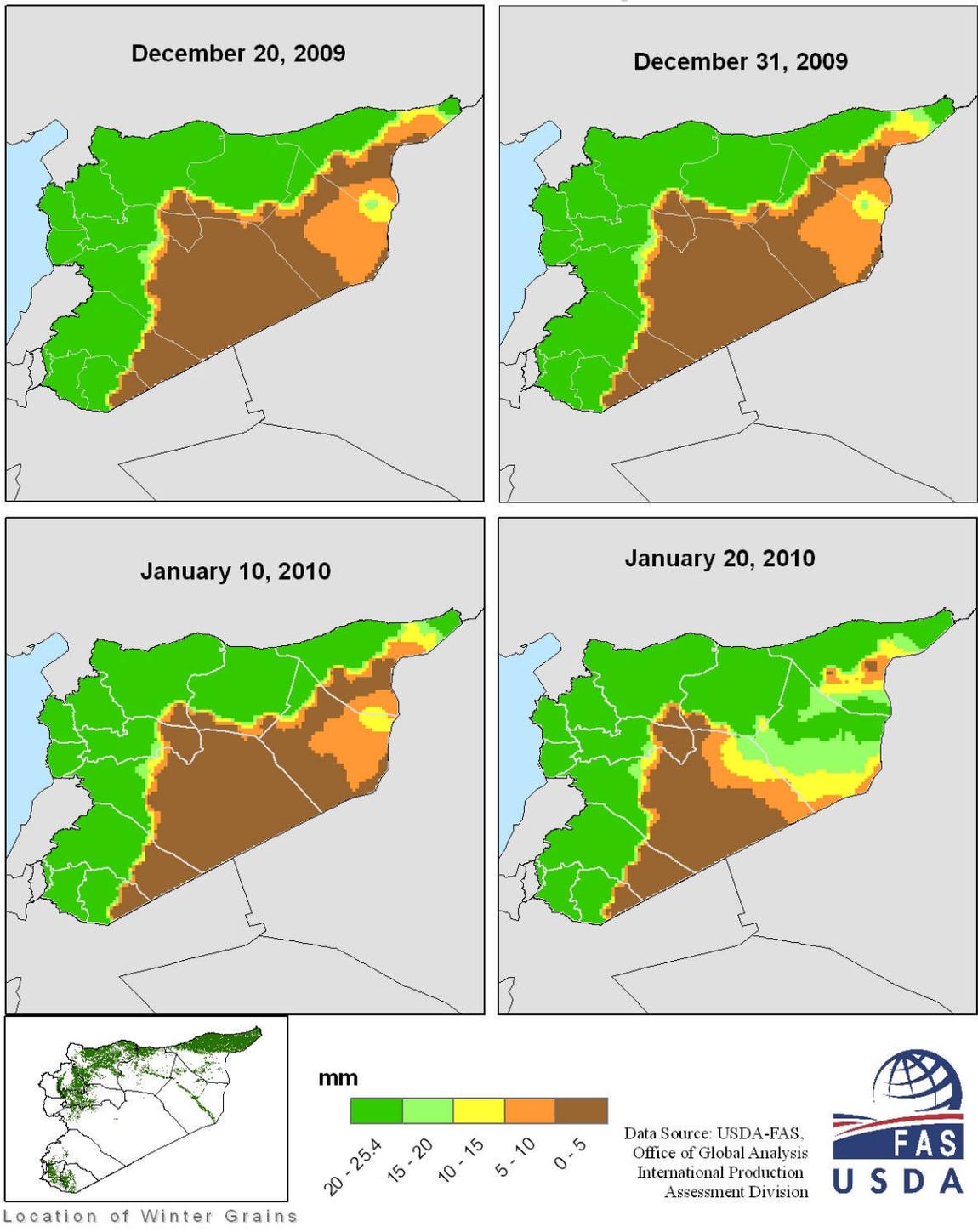
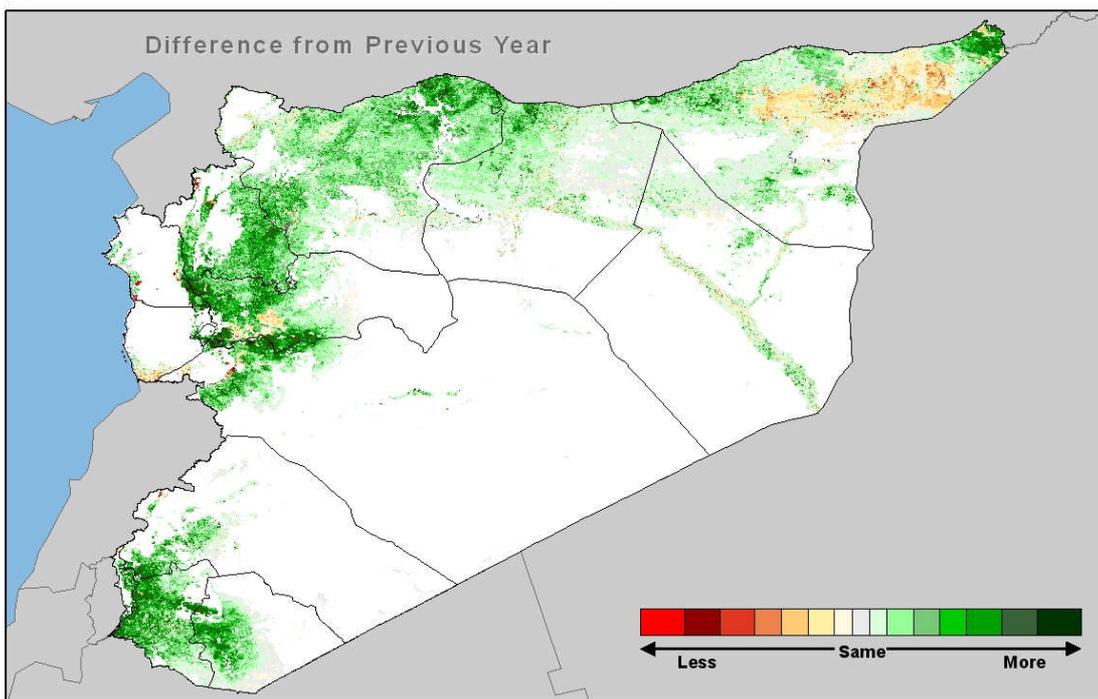
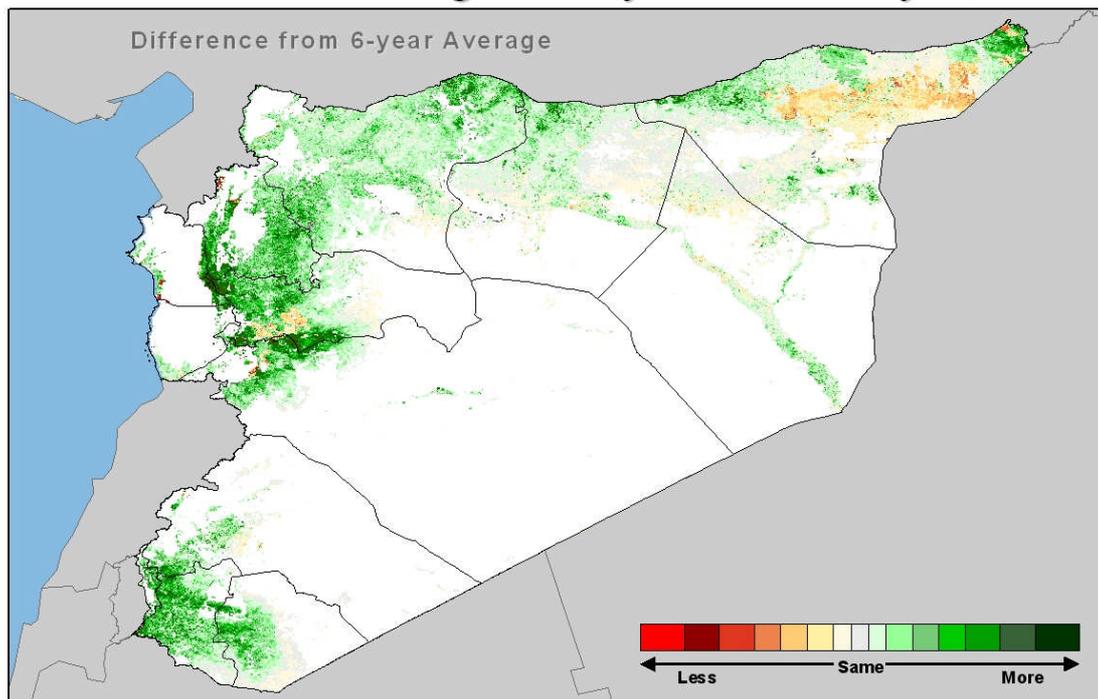


Figure 5. Subsurface Soil Moisture in Syria. *Data Source: CADRE*

# MODIS NDVI Change Analysis: January 3, 2010



Data Source: MODIS NDVI 250-m, University of Maryland  
USDA-FAS, Office of Global Analysis, IPAD  
Crop Explorer



Figure 6. MODIS NDVI Change Analysis over Syria.

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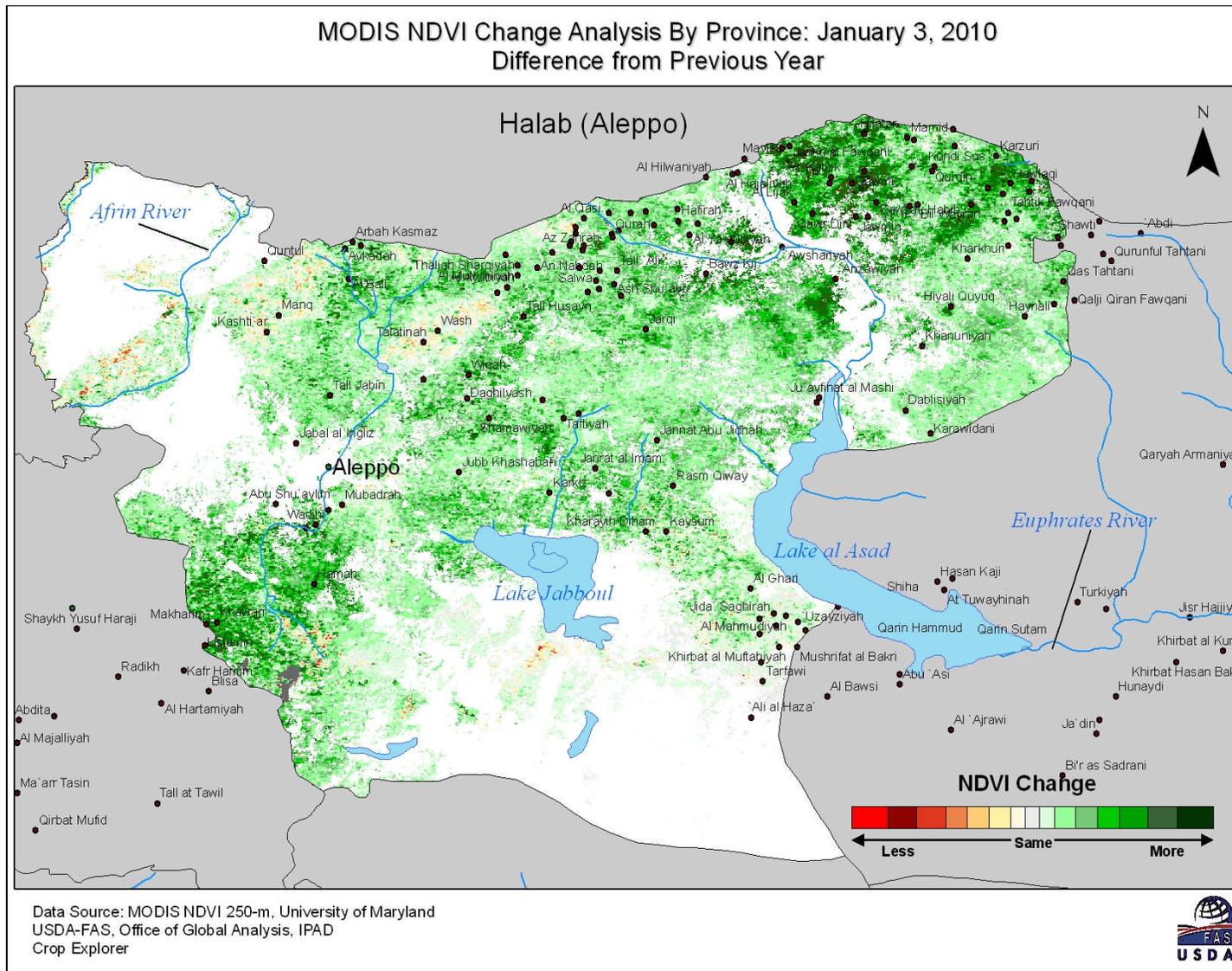


Figure 7. MODIS NDVI Change Analysis over Halab.

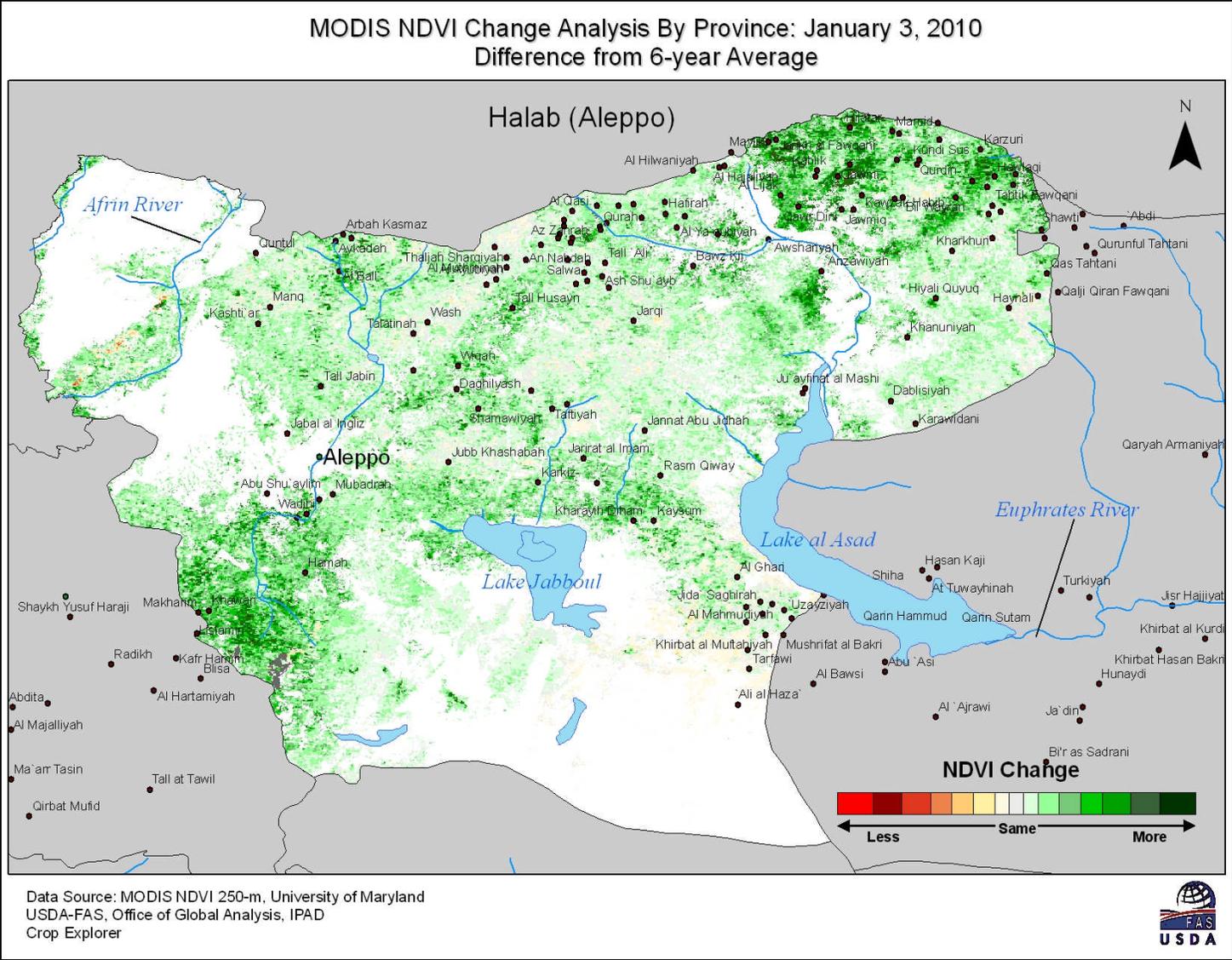


Figure 8. MODS NDVI Change Analysis over Halab.

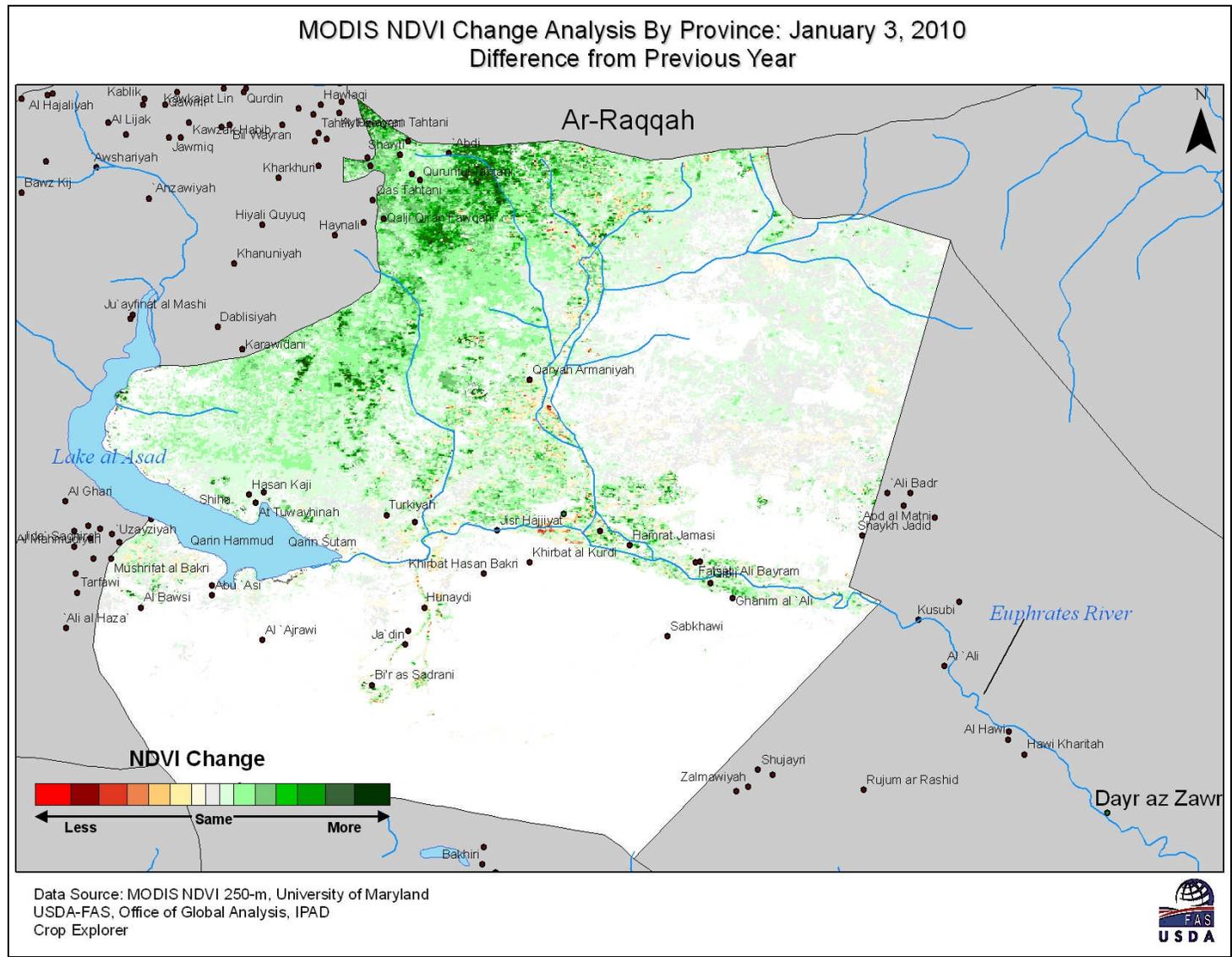


Figure 9. MODIS NDVI Change Analysis over Ar-Raqqa.

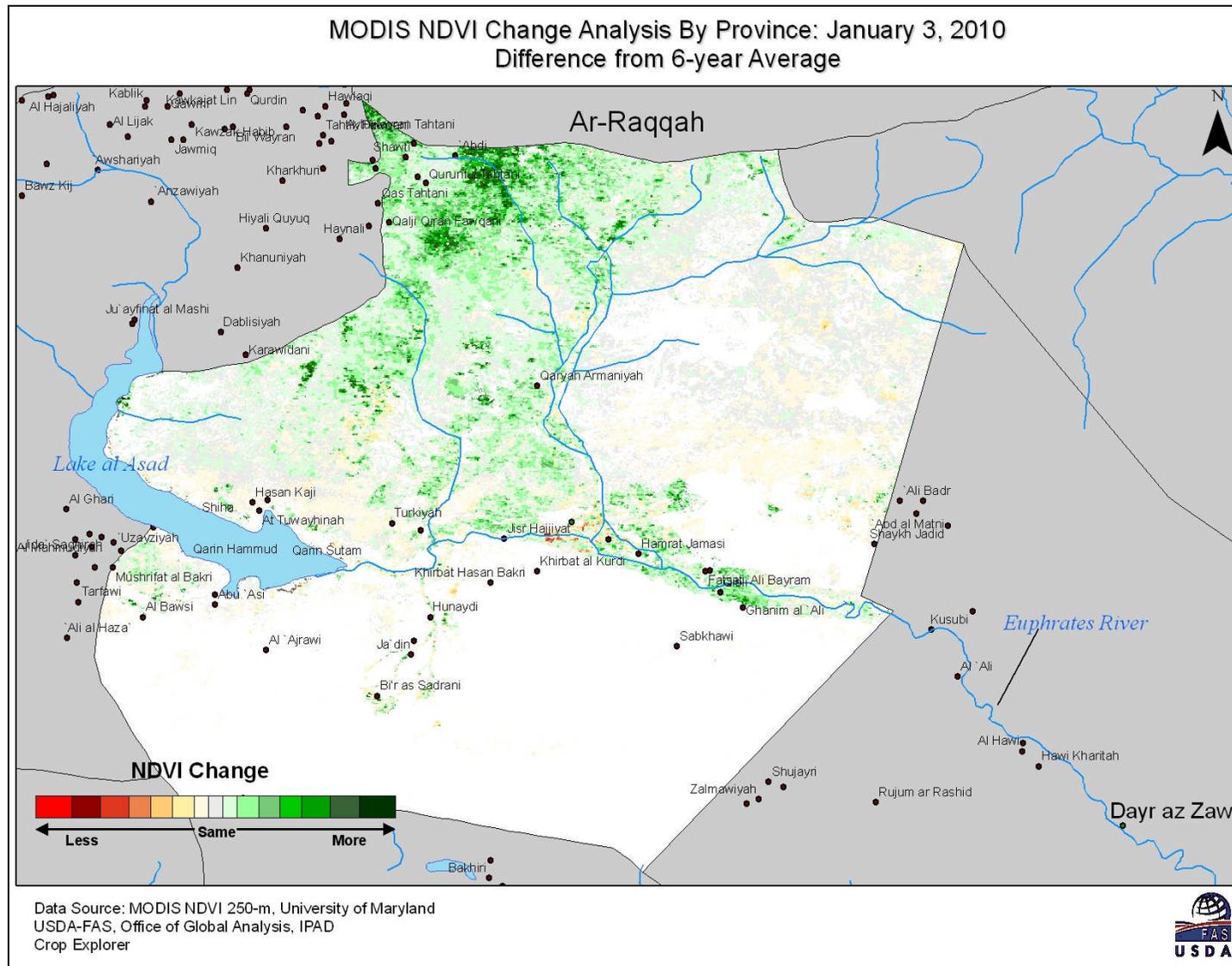


Figure 10. MODIS NDVI Change Analysis over Ar-Raqqa.

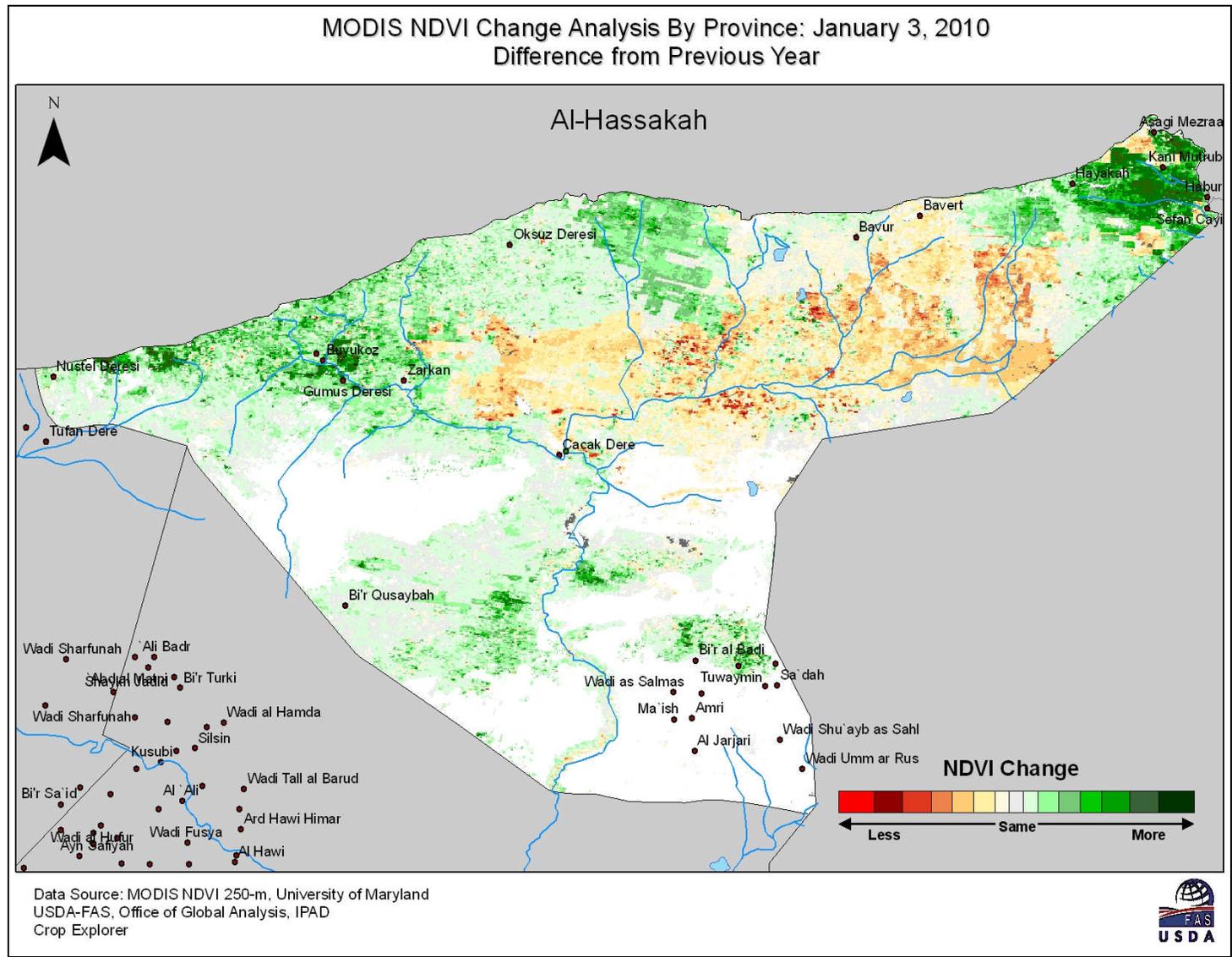


Figure 11. MODIS NDVI Change Analysis over Al-Hassakah.

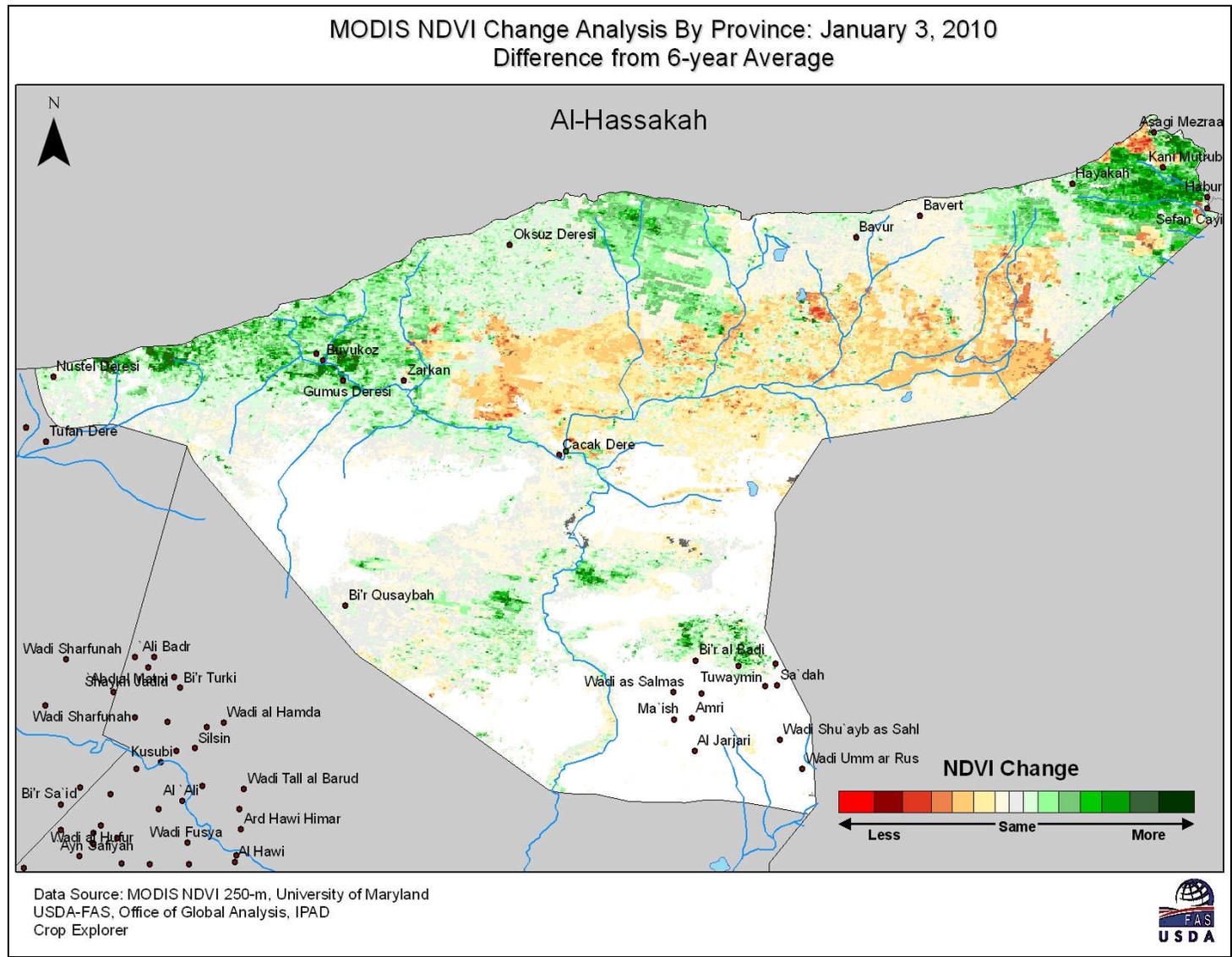


Figure 12. MODIS NDVI Change Analysis over Al-Hassakah.

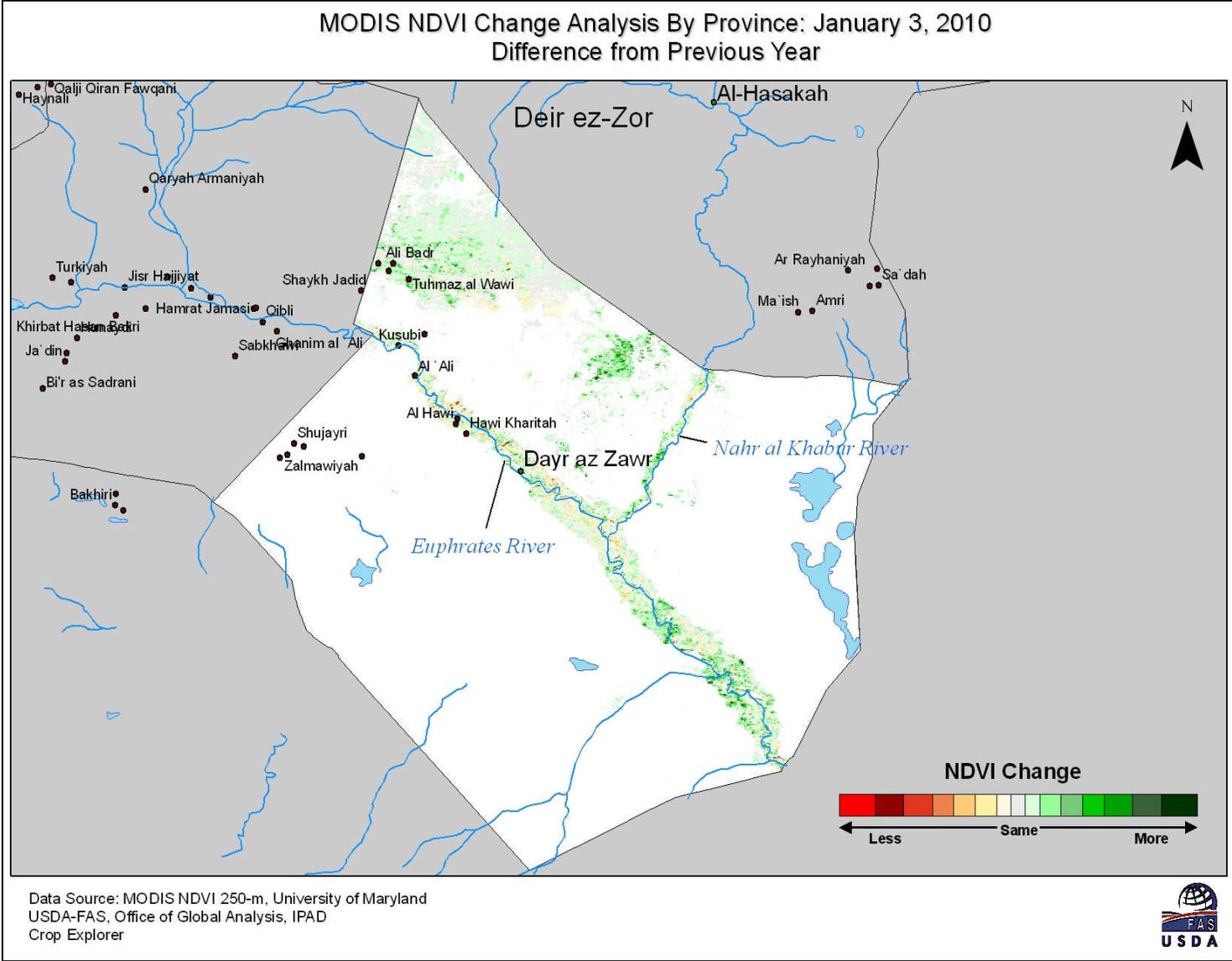


Figure 13. MODIS NDVI Change Analysis over Deir ez-Zor.

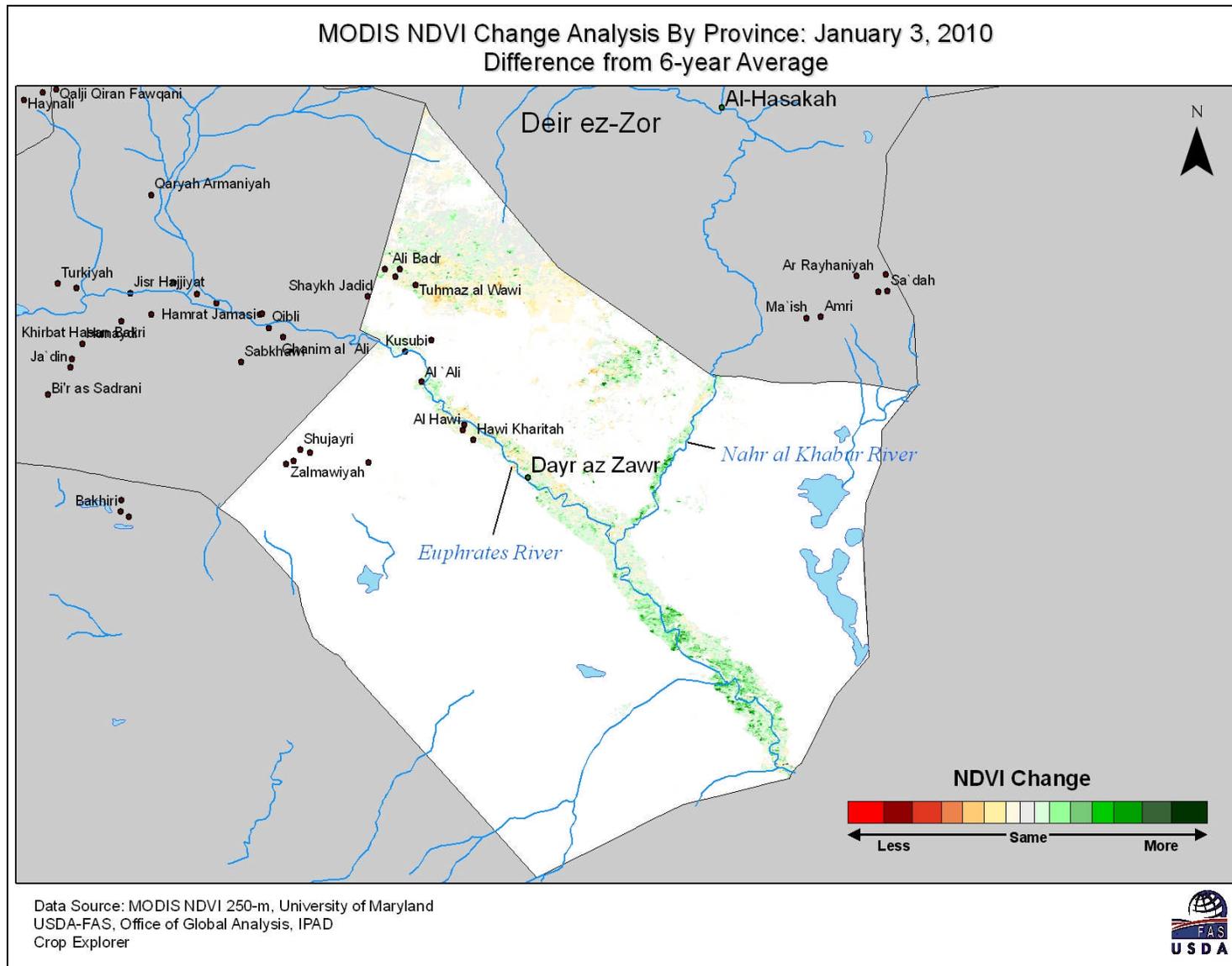


Figure 14. MODIS NDVI Change Analysis over Deir ez-Zor.

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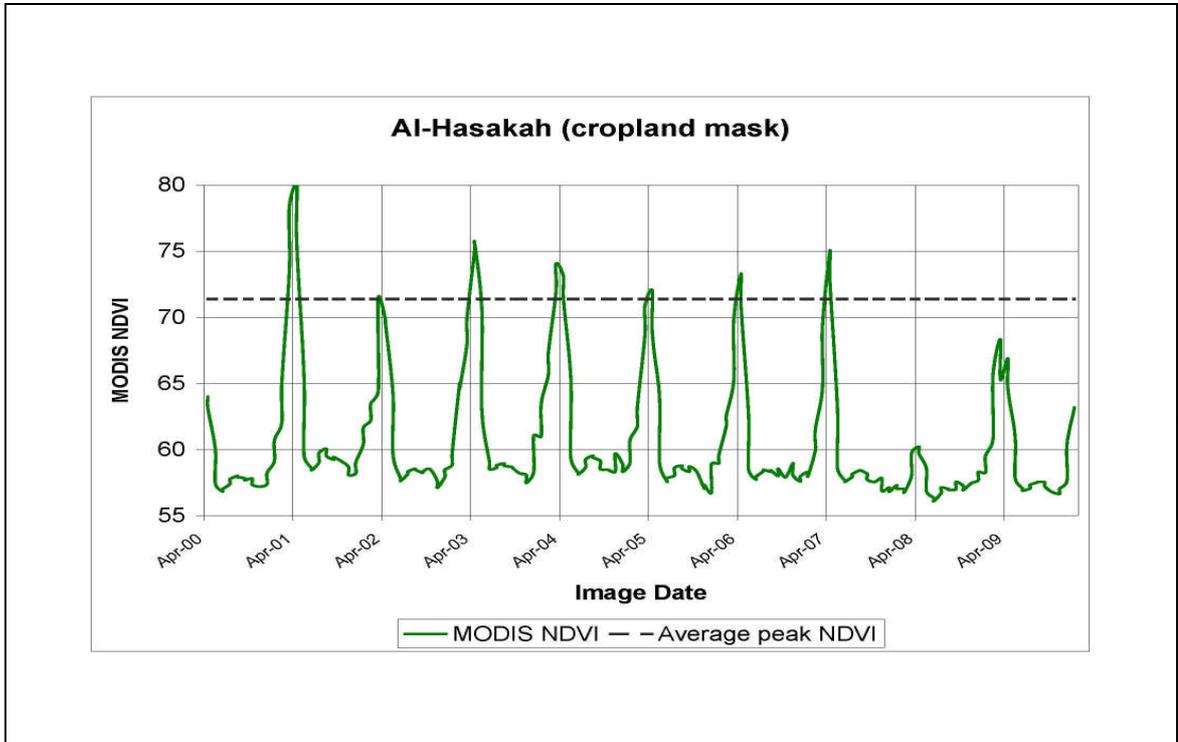


Figure 15. NDVI Graph of Al-Hasakah Province. Data Source: USDA/FAS

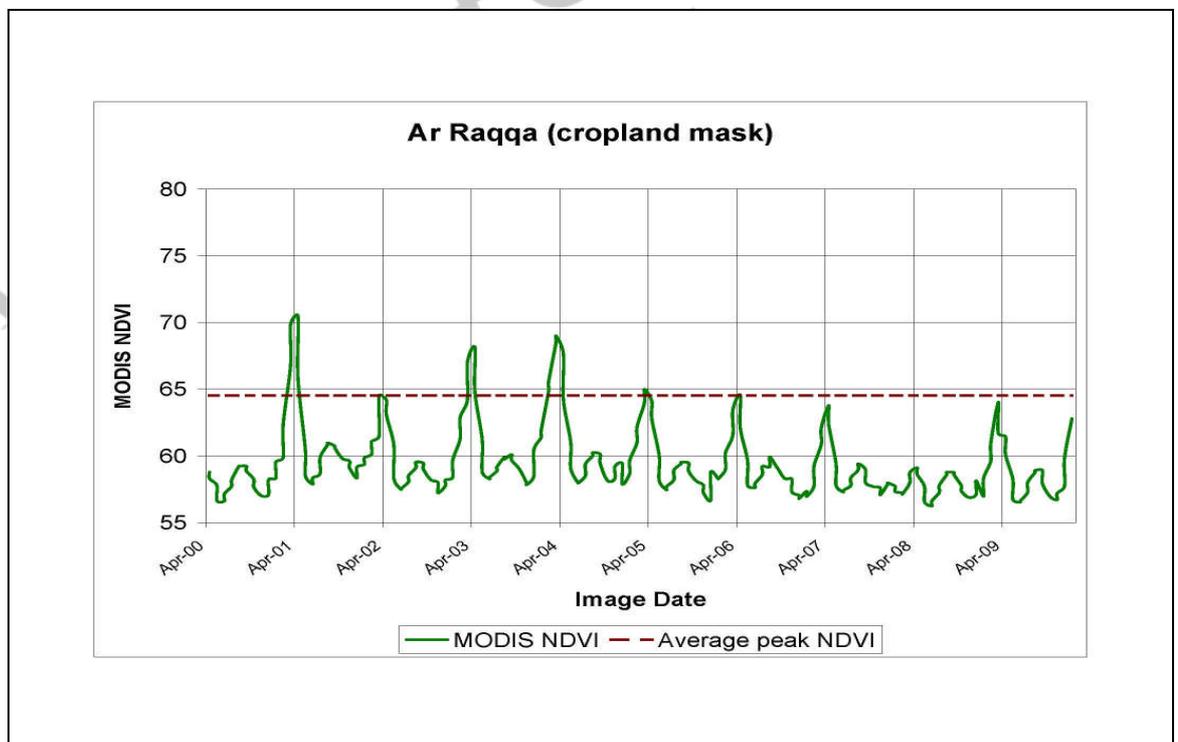


Figure 16. NDVI Graph of Ar Raqqa Province. Data Source: USDA/FAS

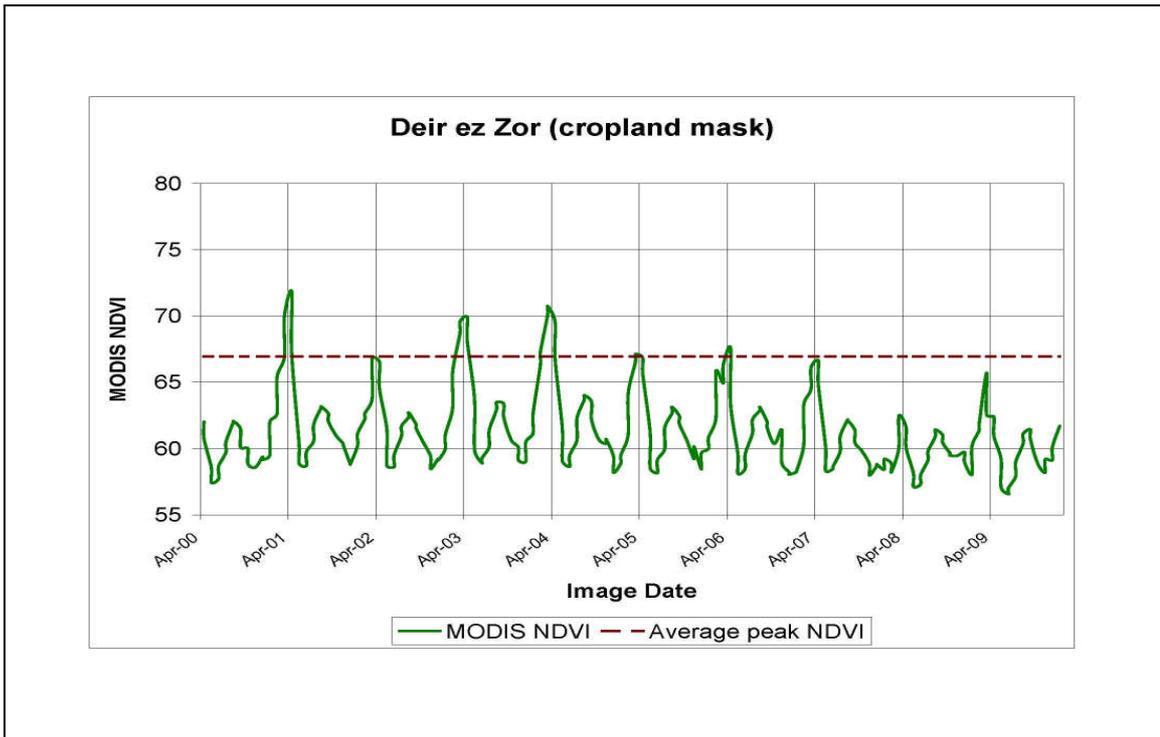


Figure 17. NDVI Graph of Deir ez-Zor Province. *Data Source: USDA/FAS*

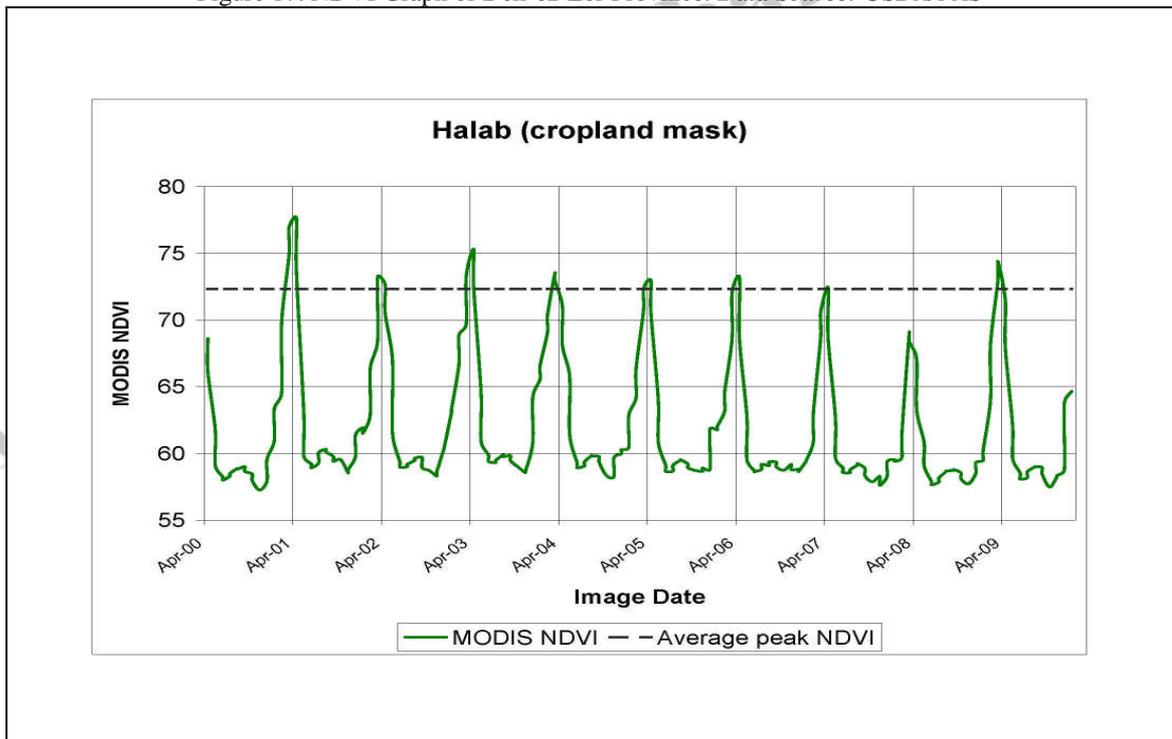
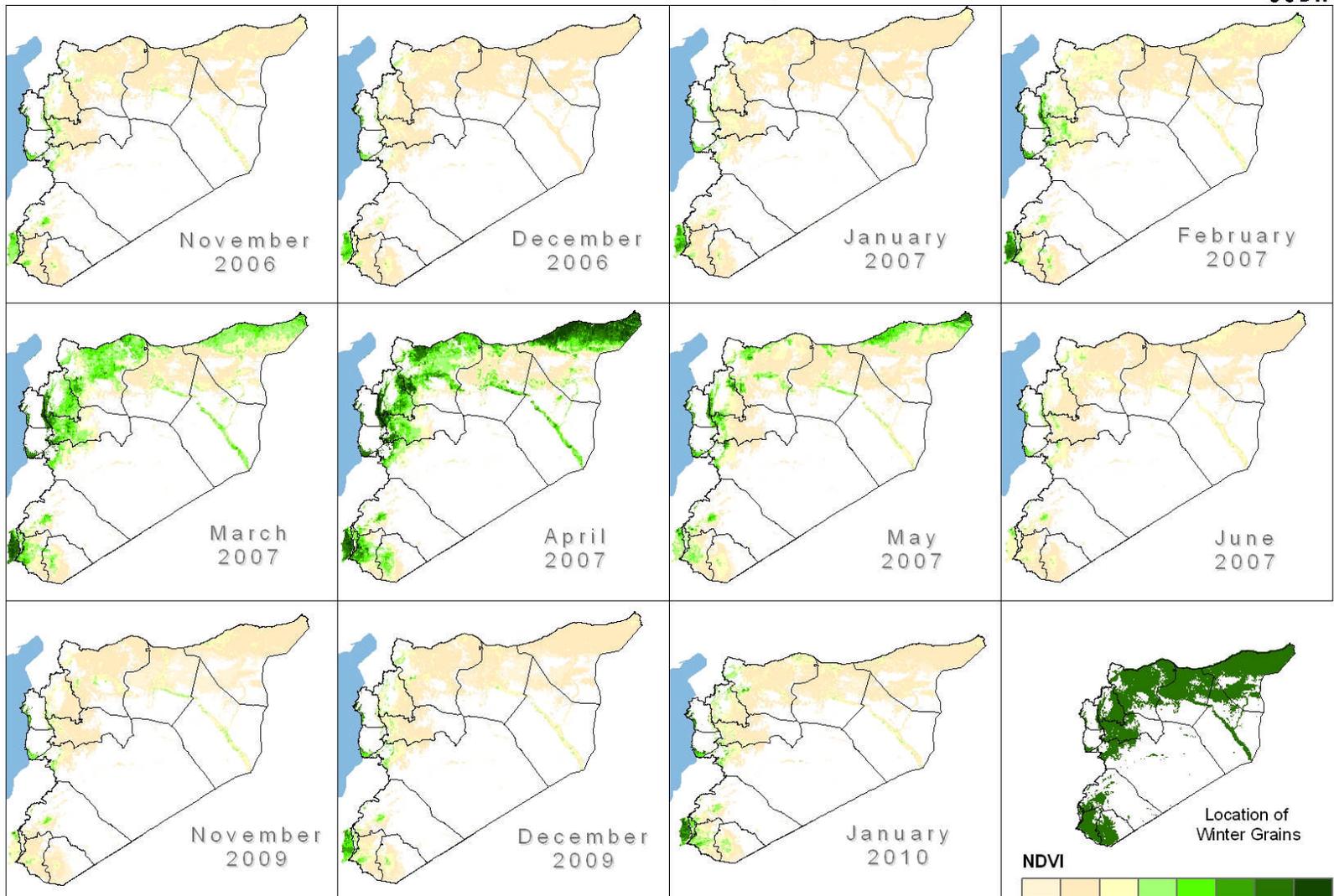


Figure 18. NDVI of Halab (Aleppo) Province. *Data Source: USDA/FAS*

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MODIS NDVI Time Series: MY 2010/11 vs. MY2006/07 (Benchmark Year)  
Winter Grains Growing Season



Data Source: MODIS NDVI University of Maryland USDA/FAS/OGA/IPAD



Figure 19. MODIS NDVI Time Series: MY 2010/11 vs. MY 2006/07 (Benchmark Year) Winter Grains Growing Season.

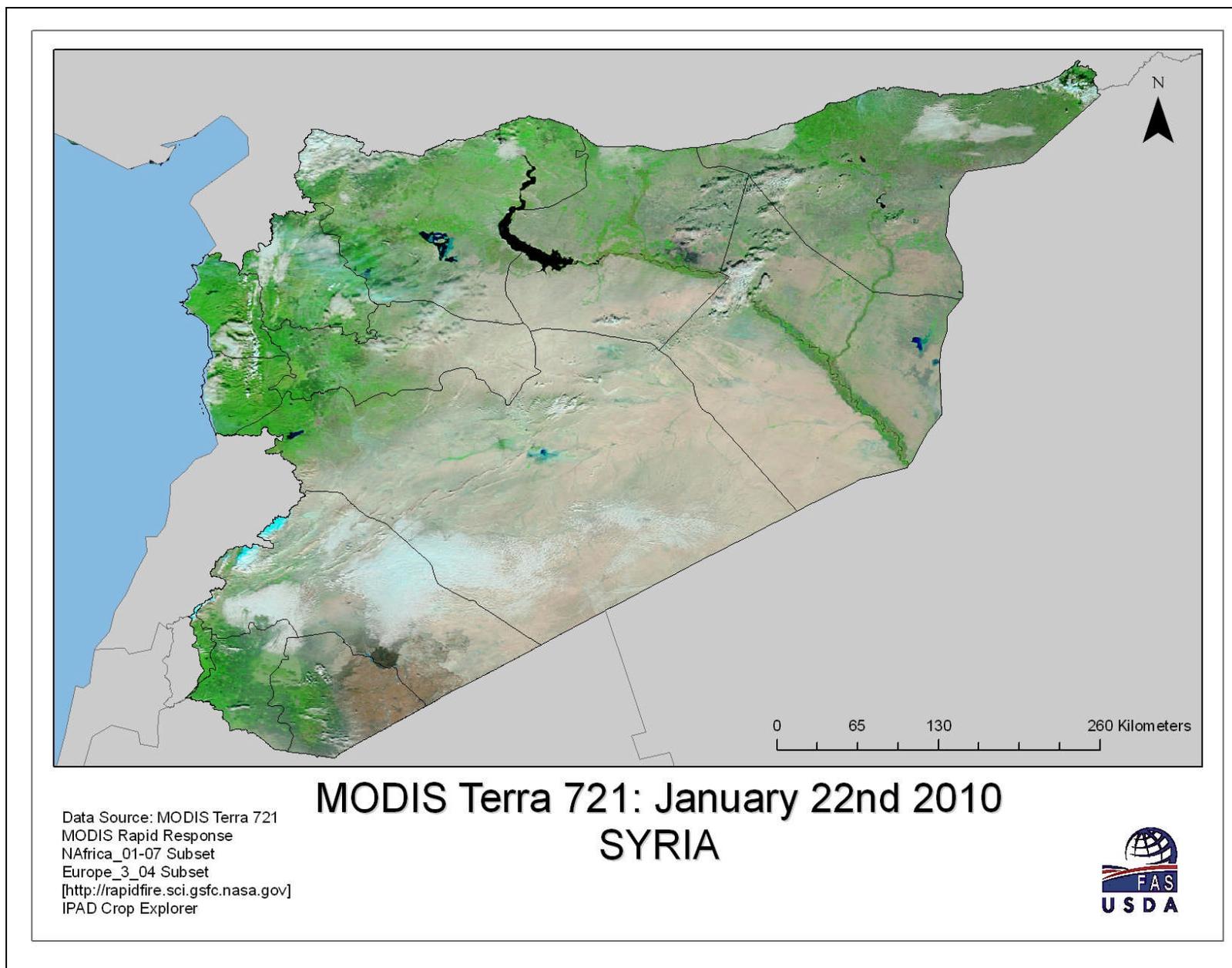


Figure 20. MODIS Terra 721 Imagery. *Data Source: MODIS Rapid Response*

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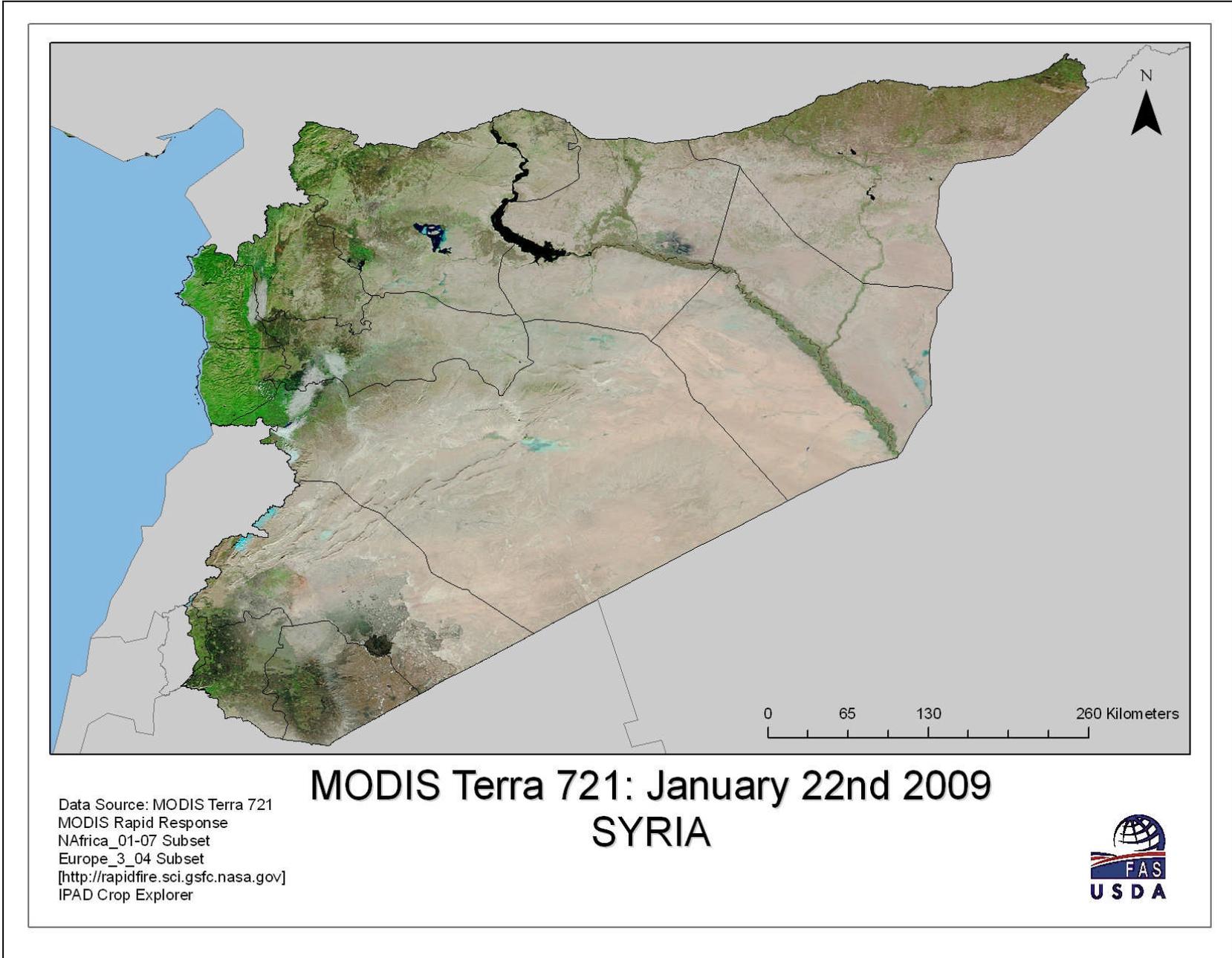


Figure 21. MODIS Terra 721 Imagery. *Data Source: MODIS Rapid Response*

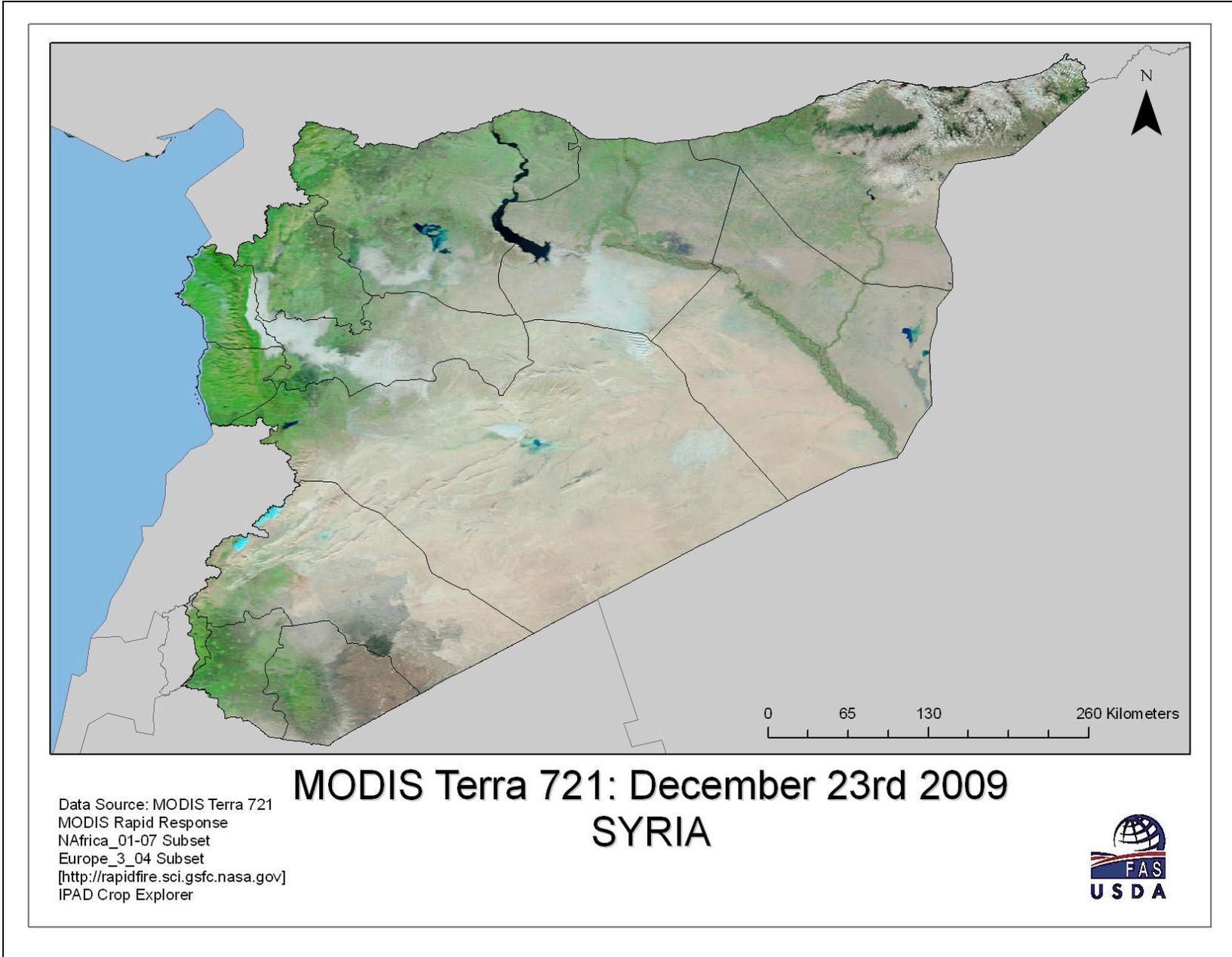
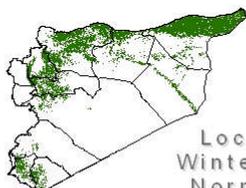
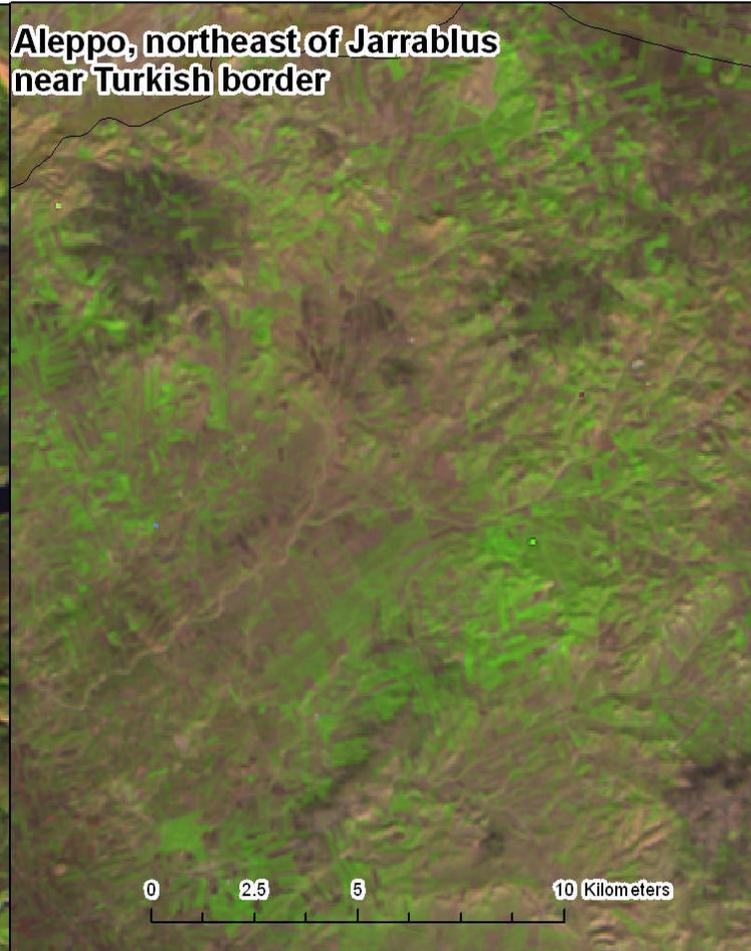
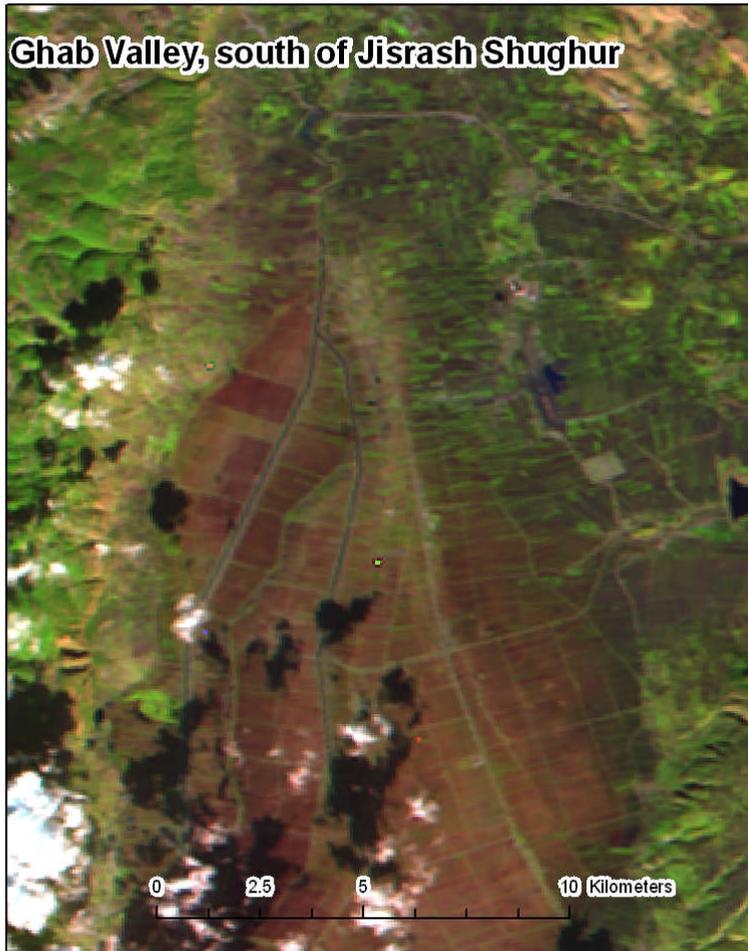


Figure 22. MODIS Terra 721 Imagery. *Data Source: MODIS Rapid Response*



Location of Winter Grains, Normal Years

**AWIFS: December 31st, 2009  
SYRIA**

Data Source: AWIFS (IRS-P6)  
USDA Archive Explorer



Figure 23. AWIFS (IRS-P6) Imagery over Syria. *Data Source: USDA/FAS*

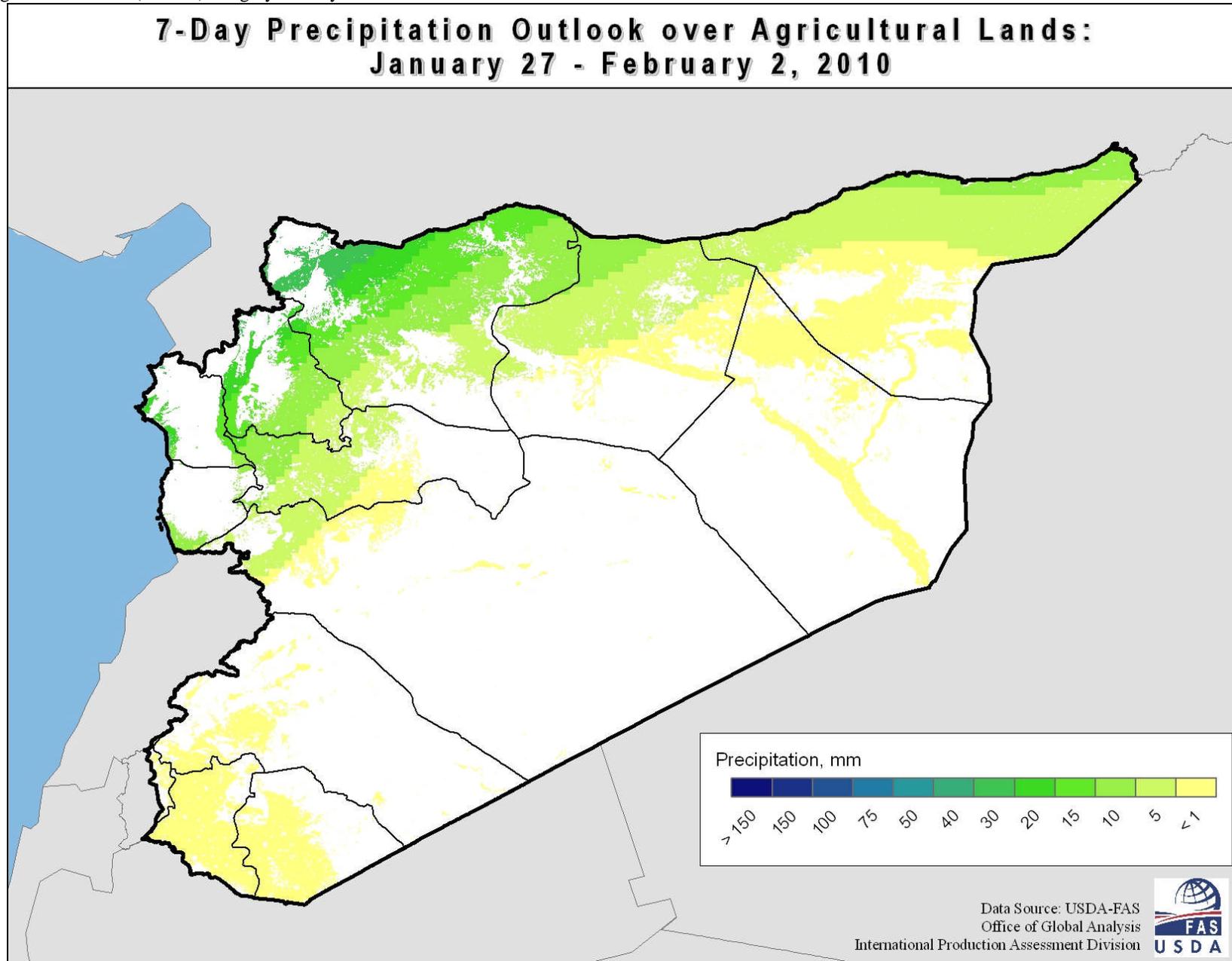


Figure 24. NOAA CPC 7-day Precipitation Forecast over Syria.

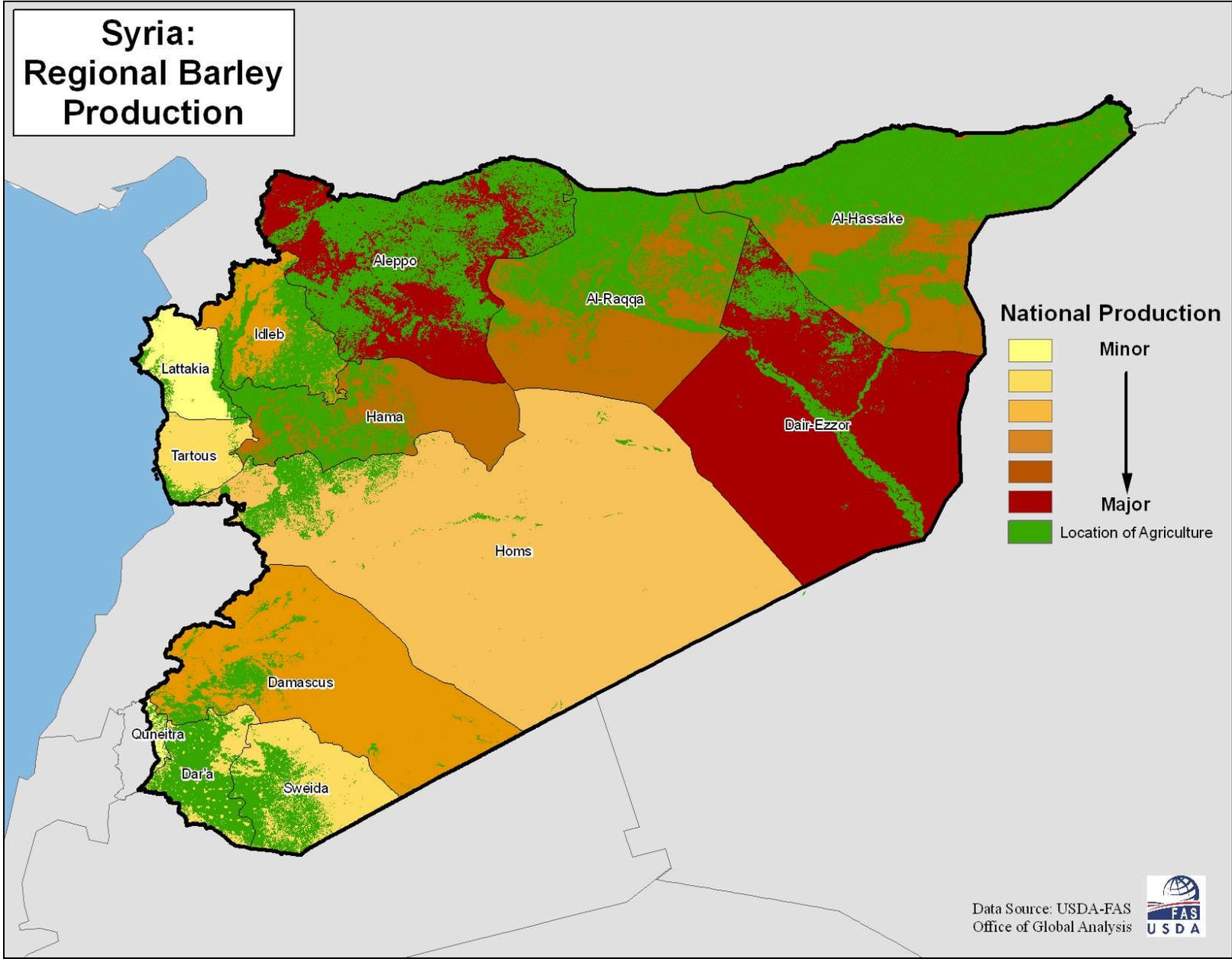


Figure 25. Barley Production in Syria.

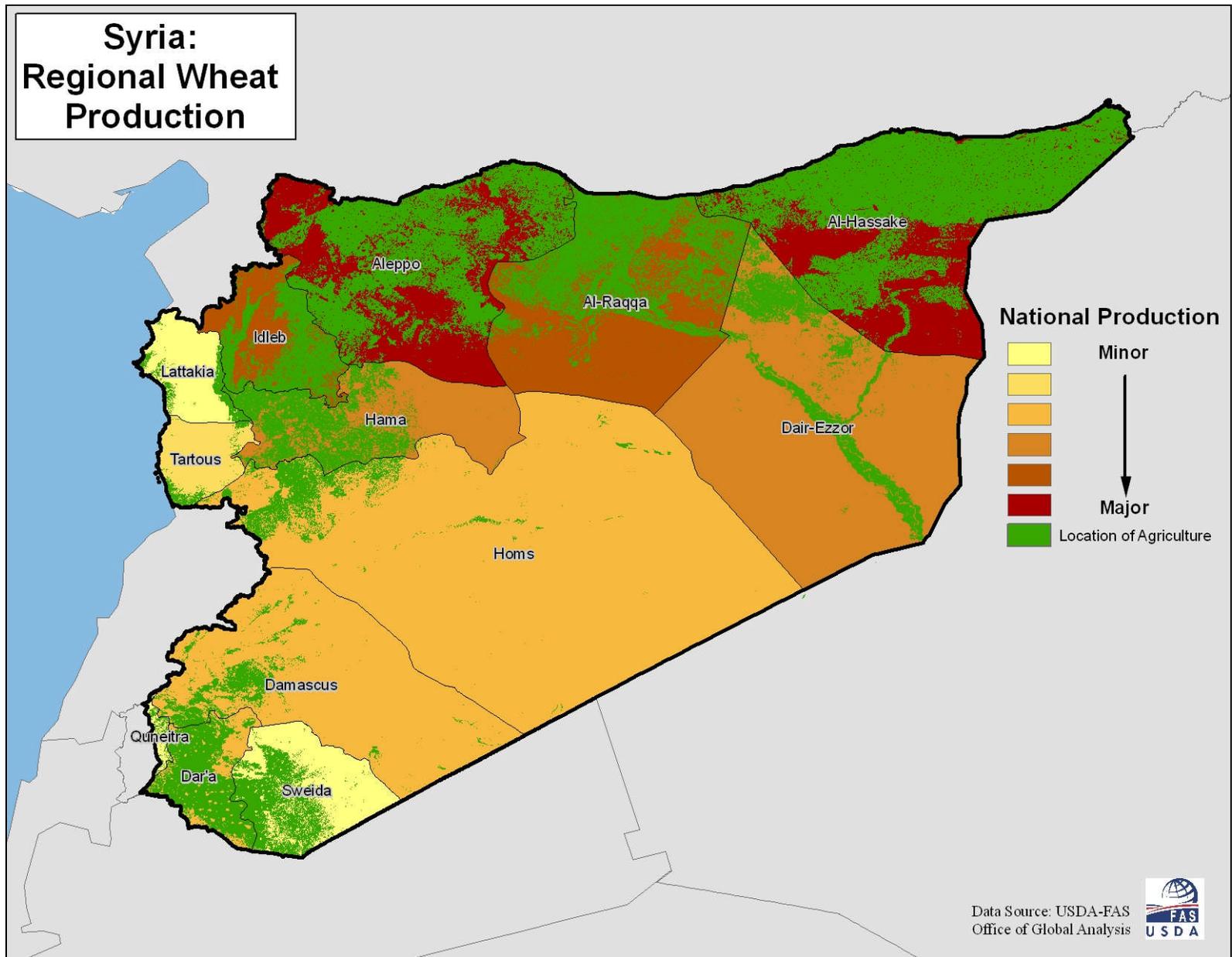


Figure 26. Wheat Production in Syria.