

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



March Report

March 27th, 2009

1. Afghanistan's grain production consists of irrigated and rainfed cropland. Rainfed crop production typically varies with seasonal precipitation whereas irrigated cropland relies on snowmelt in the spring in addition to rainfall during its growth cycle. Although 90% of irrigated and rainfed cropland is planted during the winter season (October to December), some regions also produce a spring season crop. Approximately 80% of Afghanistan's total grains production is wheat (Appendix).
2. The current winter grain (wheat) production outlook for MY 2009/10 Afghanistan is expected to be significantly improved over last year's drought-decimated harvest, though total production may fall slightly below normal. Weather conditions in April and May will play a significant role in the magnitude of national wheat production recovery, but many areas at this time are showing promising signs of good harvest potential. The one major outlier is the North Region (Sari Pul, Samangan, Balkh, Joyzjan, and Faryab provinces) which contains over half of total national rainfed wheat area. This region was particularly devastated last year during the drought, and in many areas is not showing much improvement.

National rainfed winter grain production prospects are mixed at present, with major producing areas outside the North Region showing much improved grain production prospects. The regions showing very favorable prospects are the Northeast and Northwest, where roughly 43 percent of the national rainfed wheat crop is grown. Monthly and season-to-date rainfall has been near or above normal in the Northwest and Northeast regions, whereas the North region has experienced below normal rainfall throughout the season (Figure 1 & 2). MODIS NDVI¹ time-series vegetation index data, compared to the benchmark season of MY 2007/08, indicates lower than normal national rainfed wheat yield potential for the current season (Figure 3). It is possible that last years severe drought coupled with dry autumn conditions led to a decline in rainfed winter grain plantings. Lower crop area would partially explain the difference in crop vegetation present in late March 2009.

In contrast, irrigated wheat production (MY 2009/10) prospects appear to be much improved compared to last year's drought affected crop and similar or slightly above normal potential when compared to past years; the exception being the North Region. The North Region accounts for roughly 20% of the total irrigated wheat area, and crop problems specific to this region can significantly impact overall national production. MODIS NDVI² time-series vegetation index data, compared to the benchmark season of MY 2007/08 and last year, indicates that MY2009/10 is above average in most of the irrigated crop regions (Figure 4). Season-to-date rainfall has also been above normal for more of the irrigated regions in Afghanistan, with the exception of the South and Southwest (Figure5). However, snowmelt from the Central Highlands is used to irrigate crops in these regions, and so far crop development is looking favorable.

¹ Normalized Difference Vegetation Index (NDVI) is related to vegetation abundance and vigor.
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There has been rapid snowmelt during the month of March owing to above normal daytime temperatures. However, the current end-March total snow cover is improved over last year (Figure 6). Snow depth is near or above average in the central and eastern portions of the Hindu Kush, but snow pack in the Southwest region watershed is slightly below normal. This reduced snow cover could possibly affect winter grain crop potential in the Southwest region in coming months, should irrigation supplies rapidly diminish.

High resolution satellite imagery was acquired in December and late-March over the major wheat producing province of Herat, which typically contributes 10% of total rainfed wheat and 9% of total irrigated wheat. This area of interest (AOI) was sampled over several years using temporally smoothed MODIS NDVI time-series data to provide a more seasonal comparative analysis. Results show that the current MY 2009/10 irrigated wheat crop is developing better than average (Figure 7) and production prospects are very good.

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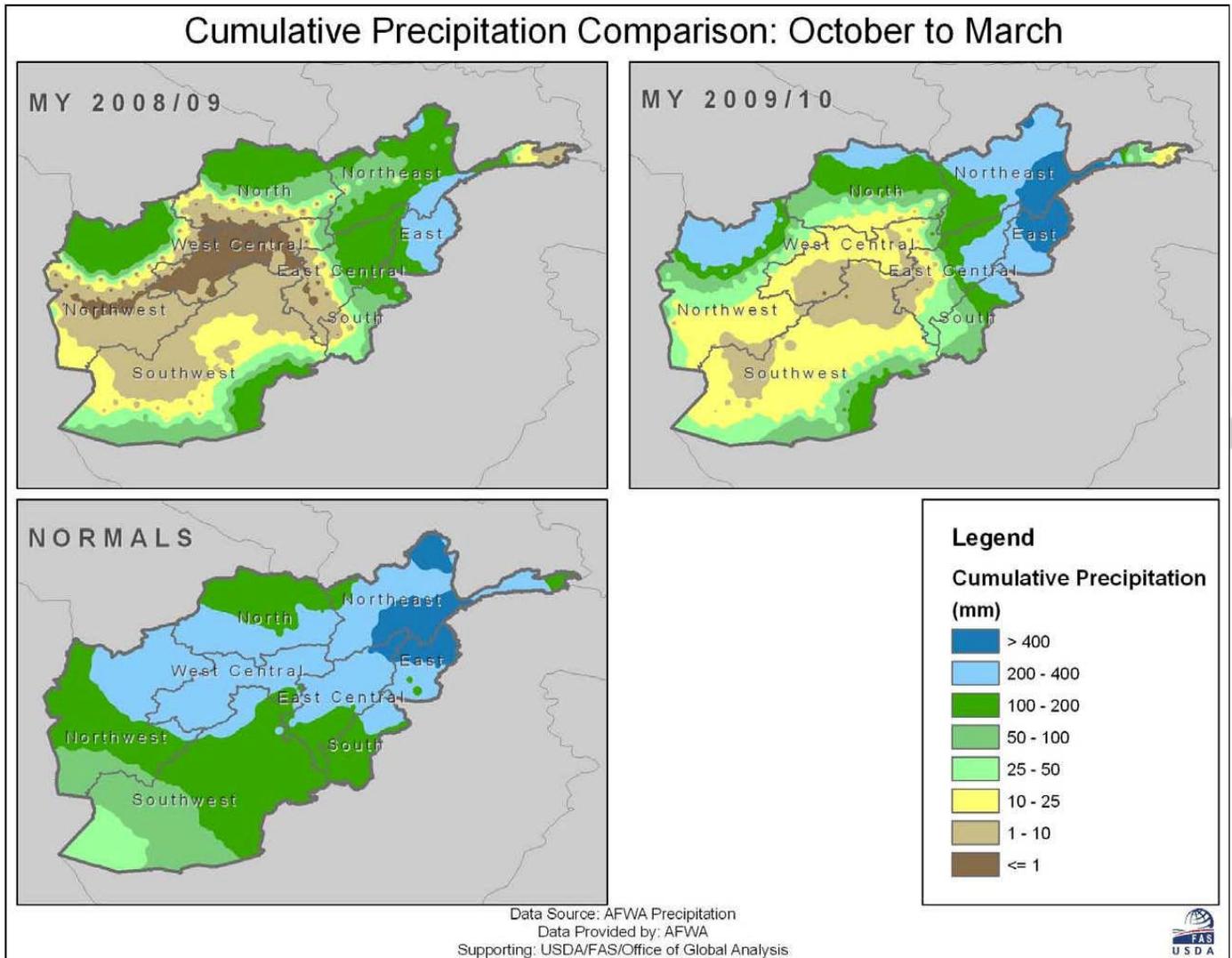
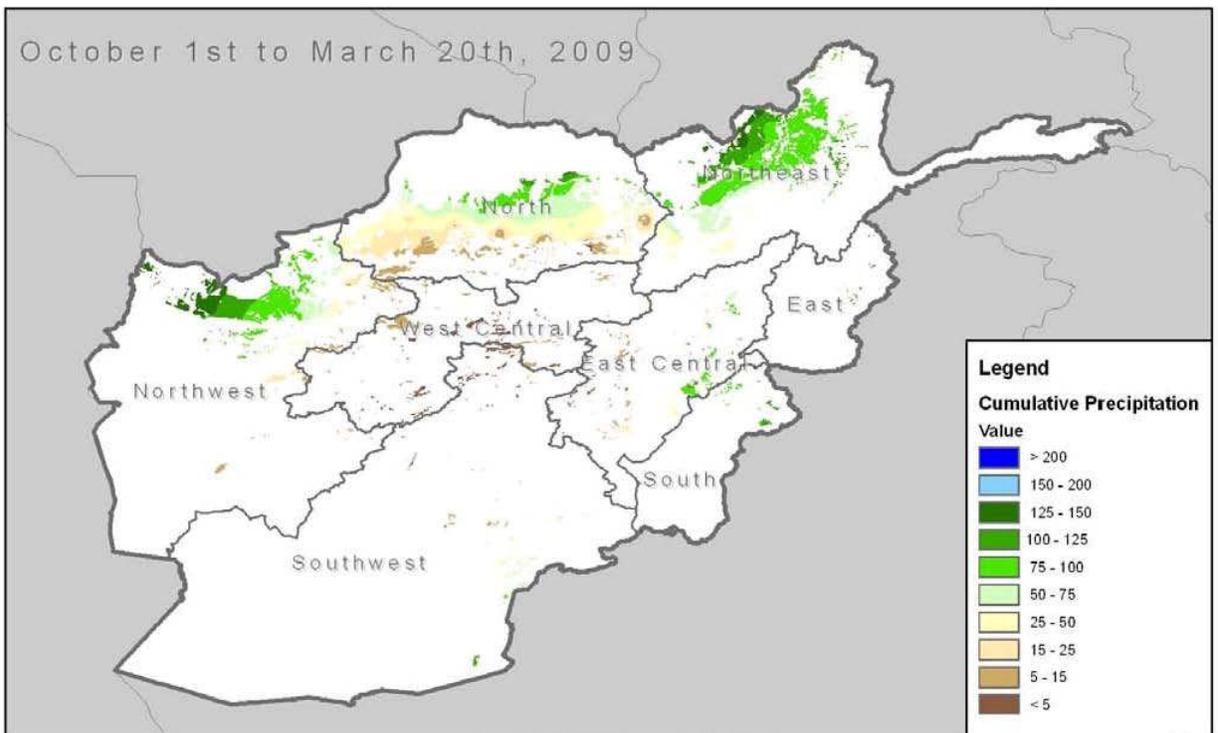
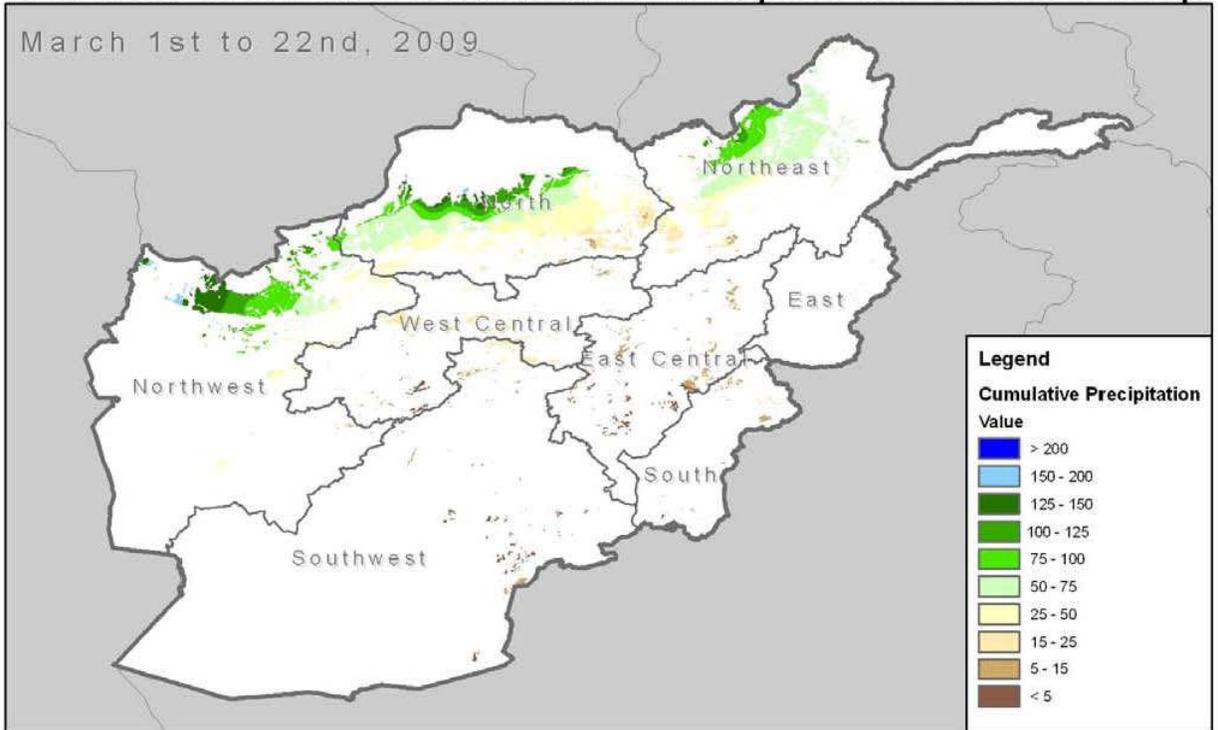


Figure 1: Cumulative precipitation comparison: MY 2009/10 vs. MY 2008/09 and Normal.

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Figure 2: Monthly and Season-to-Date percent of normal cumulative precipitation: Rainfed Crop.

Percent of Normal Cumulative Precipitation: Rainfed Crop



Data Source: AFWA Precipitation
Data Provided by: AFWA
Supporting: USDA/FAS/Office of Global Analysis



Rainfed NDVI Comparison: MY 2009/10 vs. Previous Years

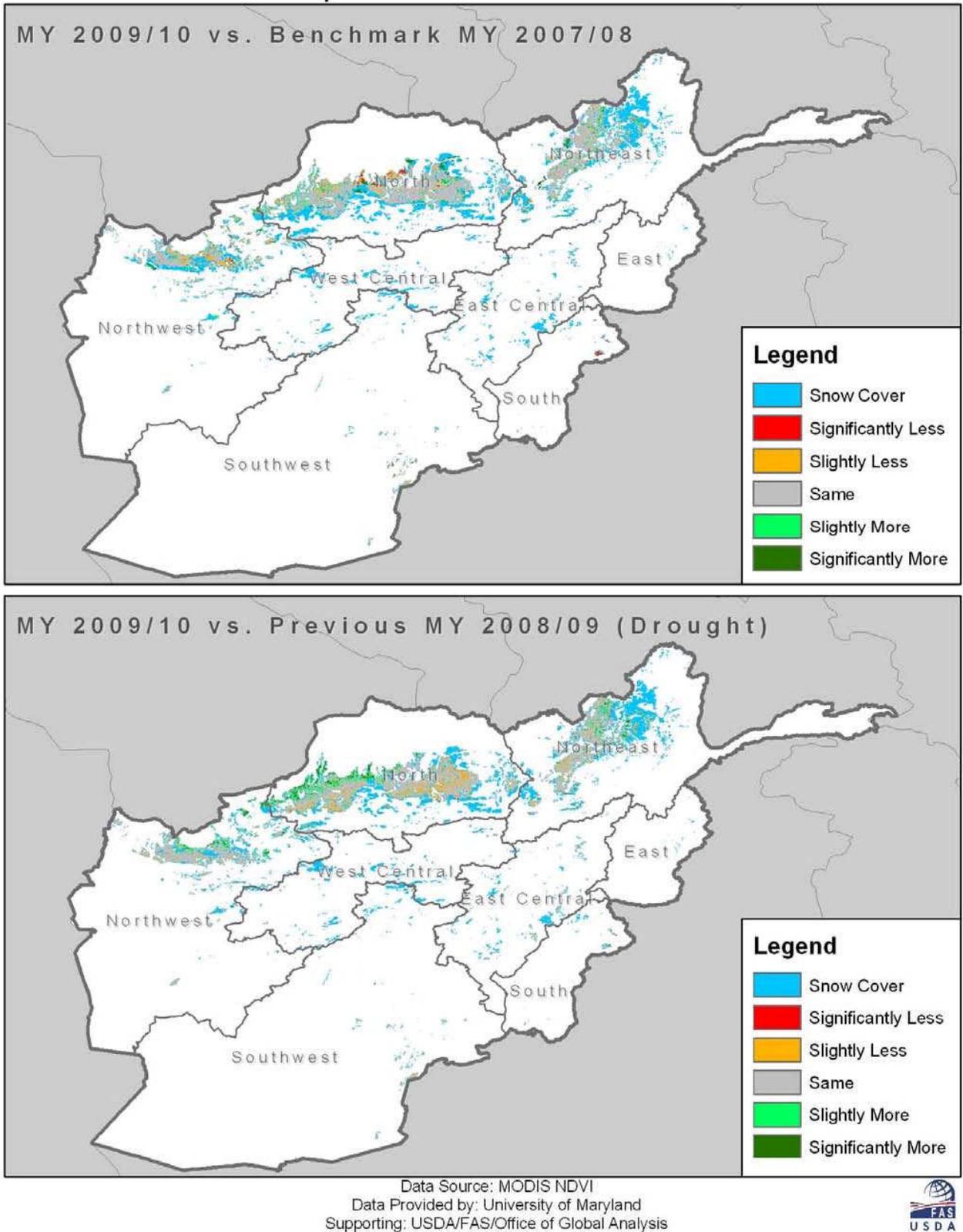


Figure 3: MY 2009/10 MODIS NDVI comparison with MY 2007/08 benchmark year and MY 2009/10 drought year.

Irrigated NDVI Comparison: MY 2009/10 vs. Previous Years

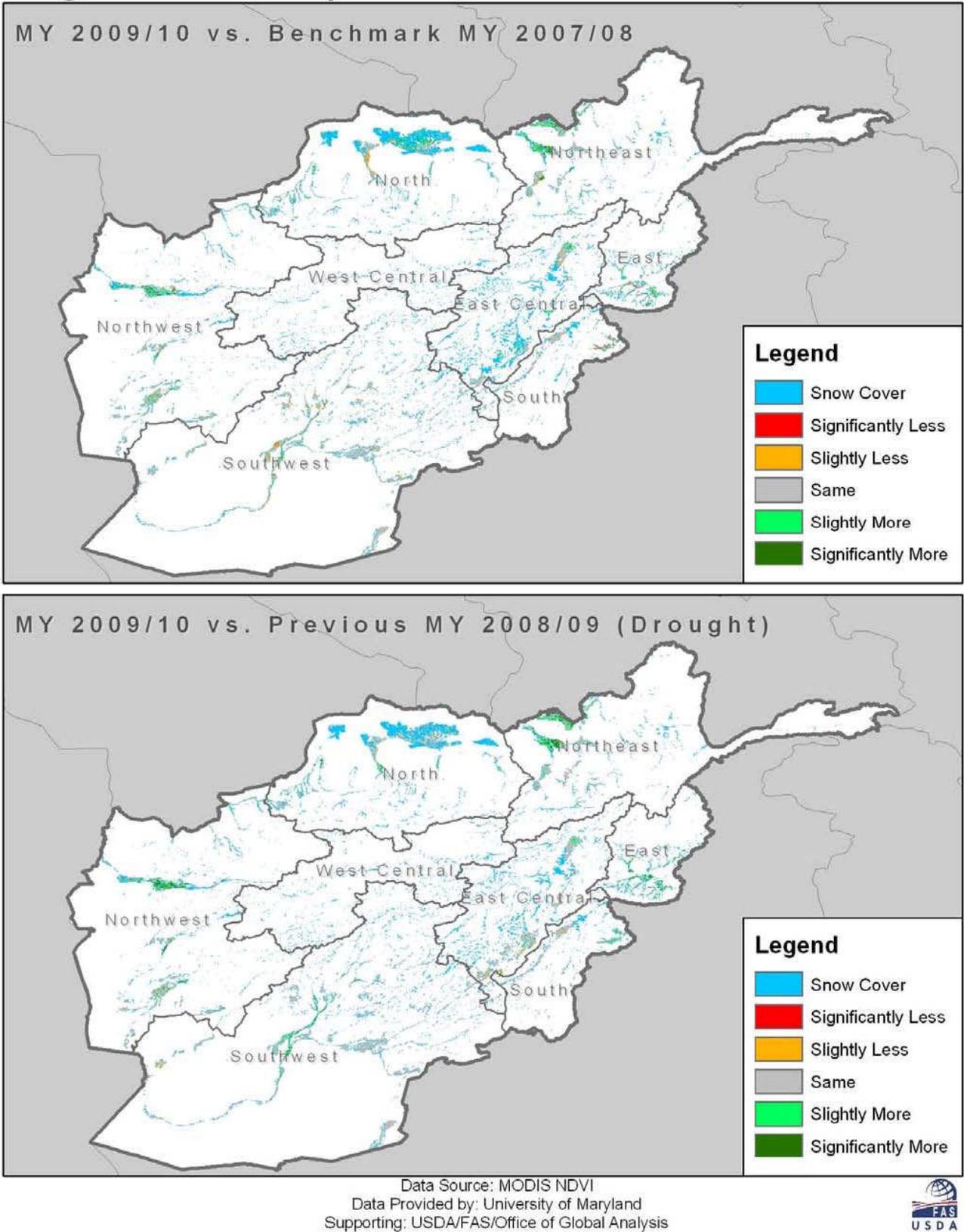
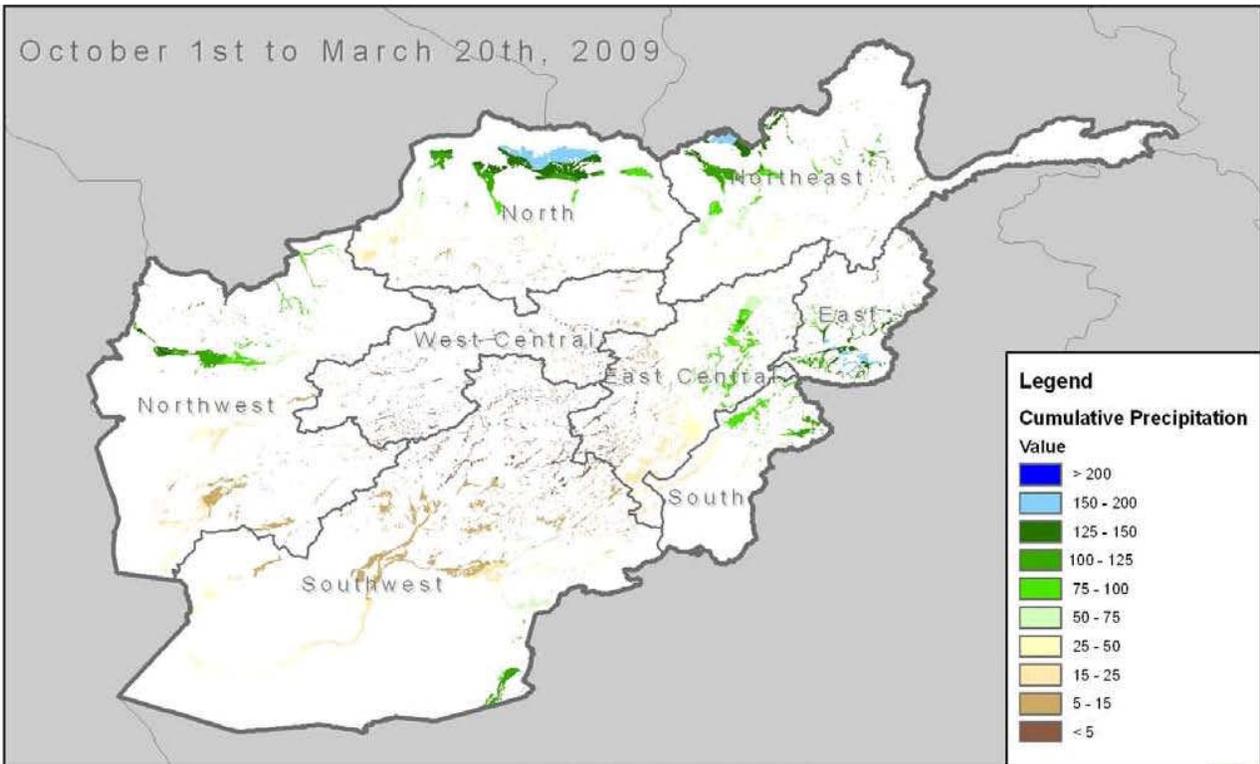
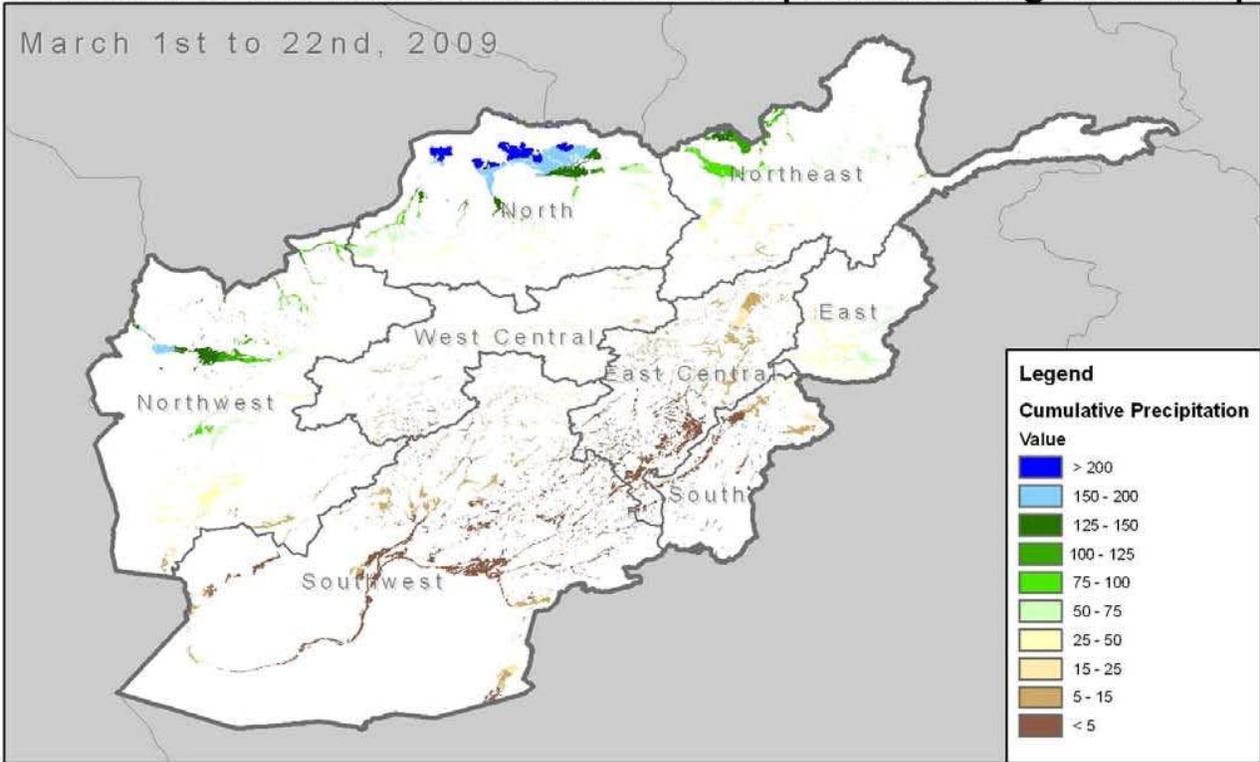


Figure 4: MY 2009/10 MODIS NDVI comparison with MY 2007/08 benchmark year and MY 2009/10 drought year.

Percent of Normal Cumulative Precipitation: Irrigated Crop



Data Source: AFWA Precipitation
Data Provided by: AFWA
Supporting: USDA/FAS/Office of Global Analysis



Figure 5: MY Monthly and Season-to-Date percent of normal cumulative precipitation: Irrigated Crop.

Snow Cover and Difference from Average

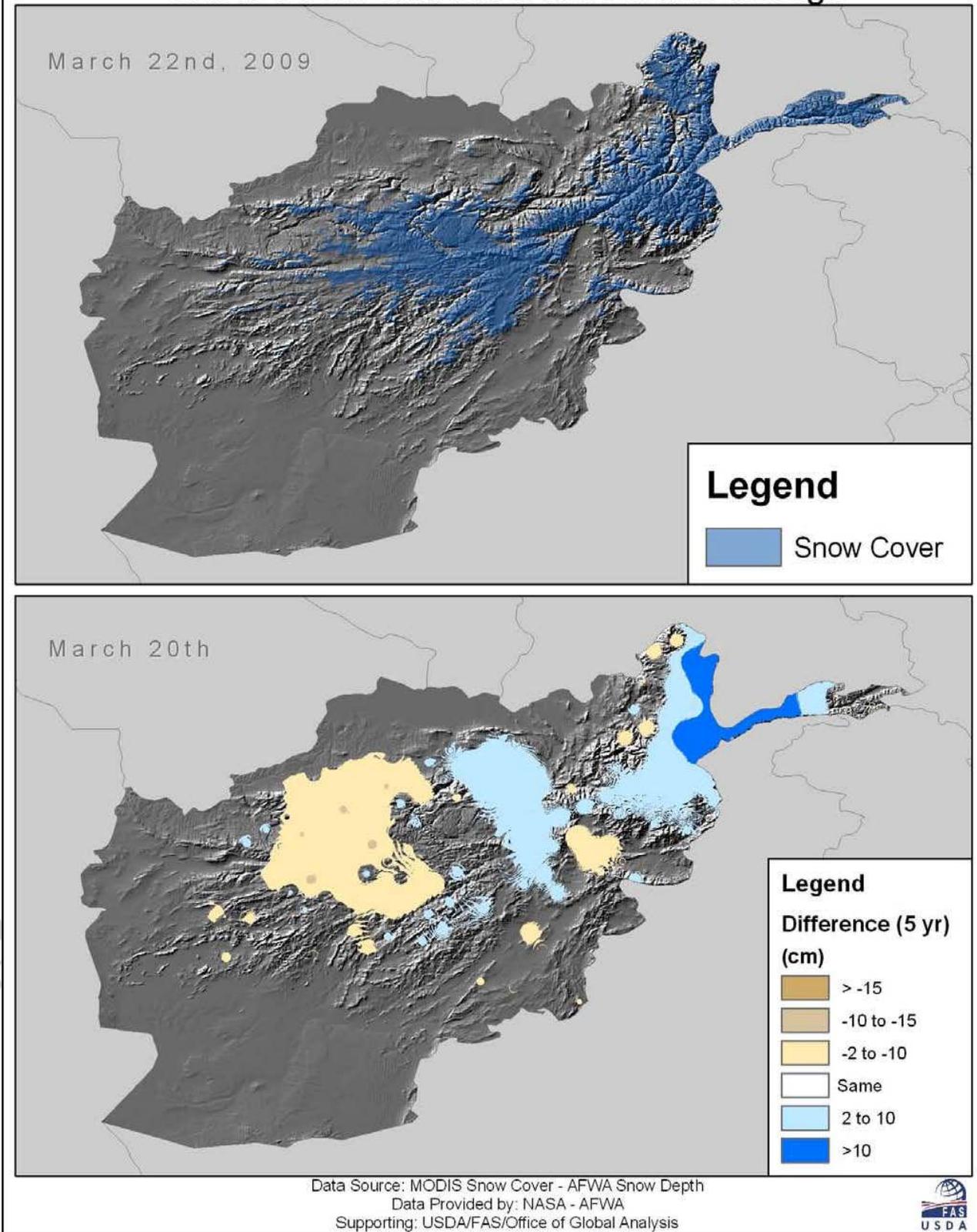


Figure 6: MY 2009/10 snow cover and difference from 5-year average snow depth.

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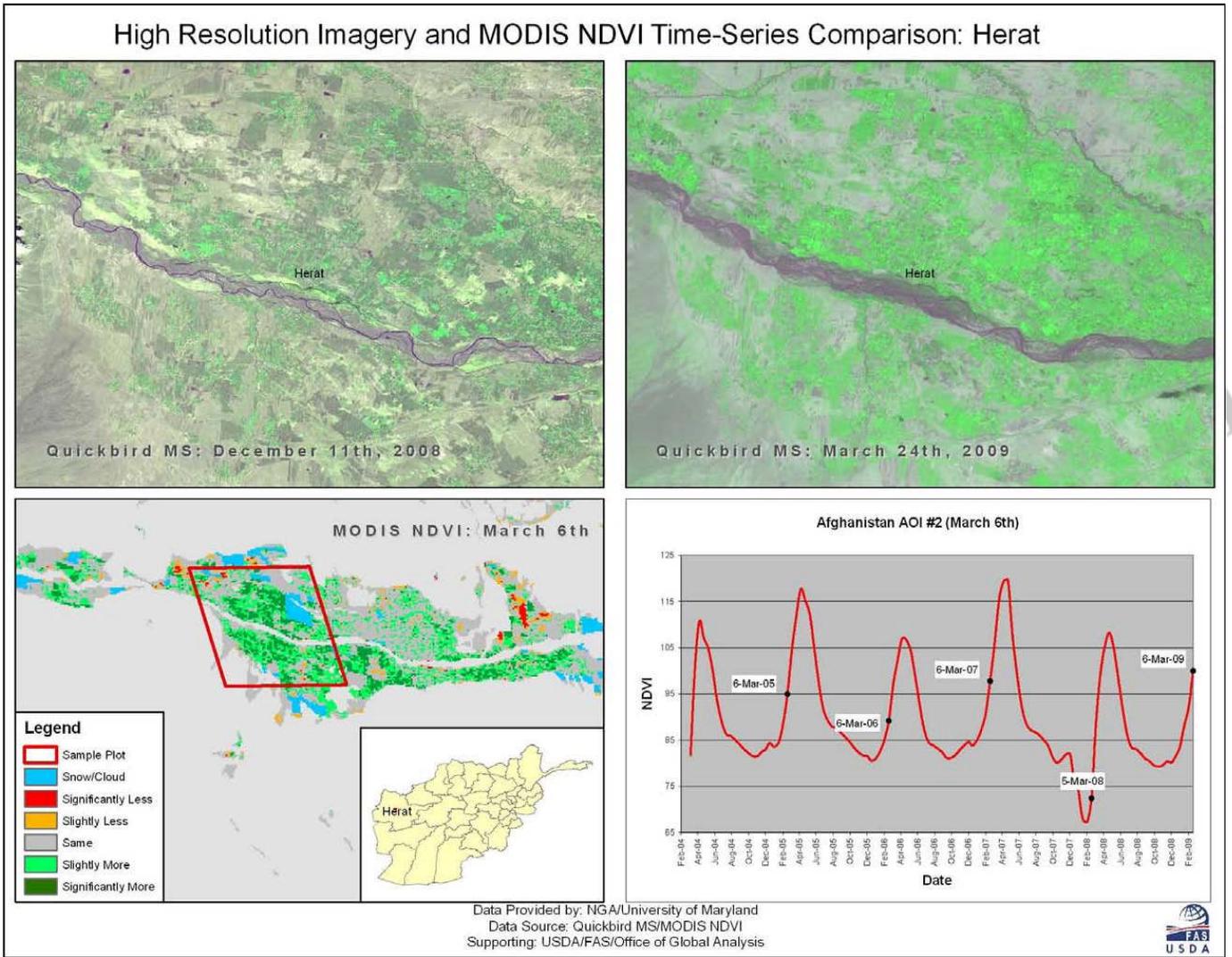
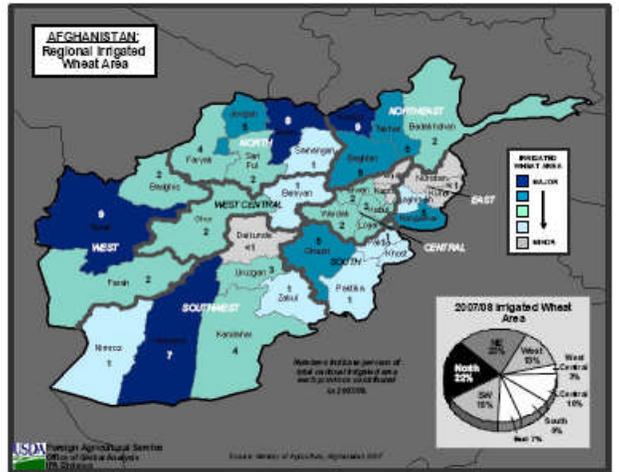
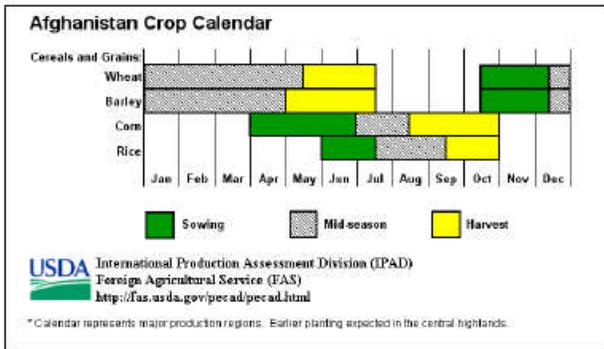
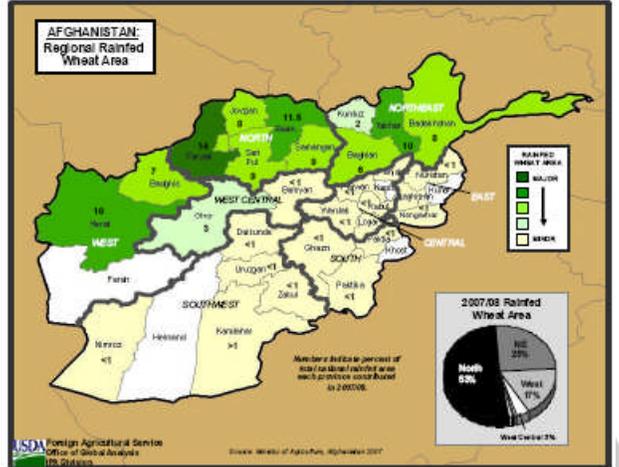
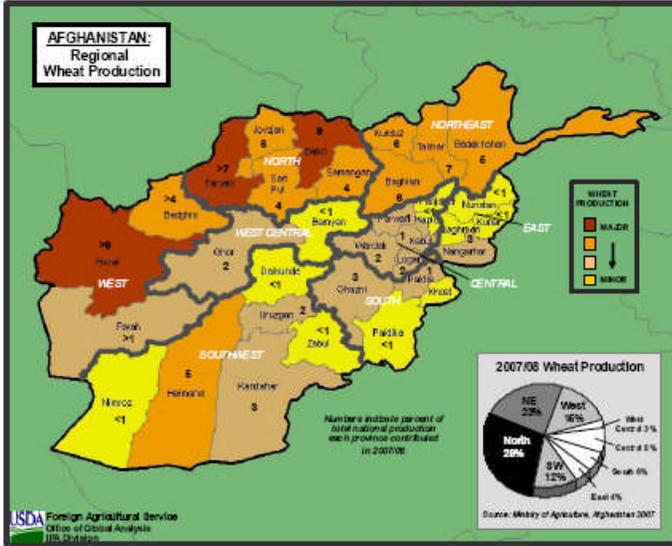


Figure 7: High resolution imagery and MODIS NDVI time-series: AOI #2, Herat province.

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 MY 2009/10 Afghanistan Regional Crop Statistics
 United States Department of Agriculture (USDA)

RAINFED								IRRIGATED															
REGION	2003/04	2004/05	2005/06	2006/07	2007/08	2009/10	5 Yr Avg	REGION	2003/04	2004/05	2005/06	2006/07	2007/08	2009/10	5 Yr Avg								
NORTH								NORTH															
Area	0.670	0.310	0.671	0.671	0.710	0.589	0.606	Area	0.217	0.208	0.224	0.237	0.220	0.221	0.221								
Yield	0.916	0.560	1.146	0.492	1.101	0.500	0.843	Yield	2.596	2.212	2.530	2.382	2.600	2.341	2.464								
Prod	0.614	0.174	0.769	0.330	0.782	0.295	0.534	Prod	0.563	0.460	0.567	0.565	0.572	0.517	0.545								
NORTHEAST								NORTHEAST															
Area	0.314	0.305	0.323	0.329	0.352	0.316	0.323	Area	0.225	0.209	0.222	0.229	0.220	0.226	0.222								
Yield	1.708	0.755	1.408	0.601	1.222	0.957	1.108	Yield	3.160	2.193	2.531	2.412	2.630	2.732	2.610								
Prod	0.536	0.230	0.455	0.198	0.430	0.303	0.359	Prod	0.711	0.458	0.562	0.552	0.579	0.618	0.580								
NORTHWEST								NORTHWEST															
Area	0.204	0.140	0.210	0.240	0.240	0.205	0.207	Area	0.139	0.135	0.144	0.146	0.144	0.146	0.142								
Yield	1.140	0.365	1.279	0.771	1.250	0.912	0.953	Yield	2.627	1.907	2.418	2.259	2.675	2.671	2.426								
Prod	0.233	0.051	0.269	0.185	0.300	0.187	0.204	Prod	0.365	0.257	0.348	0.330	0.385	0.389	0.346								
TOTAL								SOUTHWEST															
Prod	1.382	0.455	1.493	0.713	1.512	0.784	1.096	Area	0.168	0.149	0.178	0.175	0.166	0.174	0.168								
<p>Due to heavy snow cover and missing data, regional statistics were not derived for minor producing rainfed regions, which produces 4% of total wheat, or the irrigated region of WEST-CENTRAL, which produces 3% of total wheat.</p>								Yield	2.692	1.534	2.556	2.427	2.854	2.462	2.421								
								Prod	0.452	0.229	0.455	0.425	0.474	0.428	0.410								
								SOUTH								Area	0.047	0.049	0.046	0.046	0.044	0.046	0.046
								Yield	2.963	1.393	2.579	2.354	2.678	2.245	2.369								
								Prod	0.139	0.068	0.119	0.108	0.118	0.103	0.109								
								EAST								Area	0.063	0.064	0.074	0.076	0.072	0.078	0.071
								Yield	2.163	1.740	2.125	2.370	2.715	2.446	2.260								
								Prod	0.136	0.111	0.157	0.180	0.195	0.191	0.162								
								EAST-CENTRAL								Area	0.163	0.122	0.166	0.163	0.159	0.156	0.155
								Yield	3.468	2.023	2.606	2.622	2.820	2.574	2.686								
								Prod	0.565	0.247	0.433	0.427	0.448	0.401	0.420								
								TOTAL								Prod	2.933	1.831	2.640	2.587	2.771	2.647	2.573

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APPENDIX



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