



2015-06-30
By: J Malherbe, R Kuschke

Contents

| | |
|--|----|
| Summary | 2 |
| Overview of conditions over South Africa | 3 |
| Rainfall..... | 3 |
| Latest status of indicators of global climate | 4 |
| SSTs | 4 |
| El Niño-Southern Oscillation (SSTs and SOI) | 5 |
| ENSO probabilistic forecast | 6 |
| Southern Annular Mode (SAM) | 6 |
| Overview of significant weather conditions during the coming week globally (<i>Sourced from the output of Global Coupled Climate Models, published online</i>) | 7 |
| Tropical Cyclones | 7 |
| Conditions over the USA, Europe and Australia (30 June - 6 July) | 8 |
| USA..... | 8 |
| Europe | 10 |
| Australia..... | 11 |
| Overview of expected conditions over South Africa during the next few days | 12 |
| Significant weather events (30 June – 6 July) | 12 |
| Conditions in main agricultural production regions (30 June – 6 July)..... | 12 |
| Daily rainfall and temperatures across South Africa | 14 |
| Possible extreme conditions - relevant to agriculture | 17 |

Cumulus

Absa Insurance Company
Absa Versekeringsmaatskappy

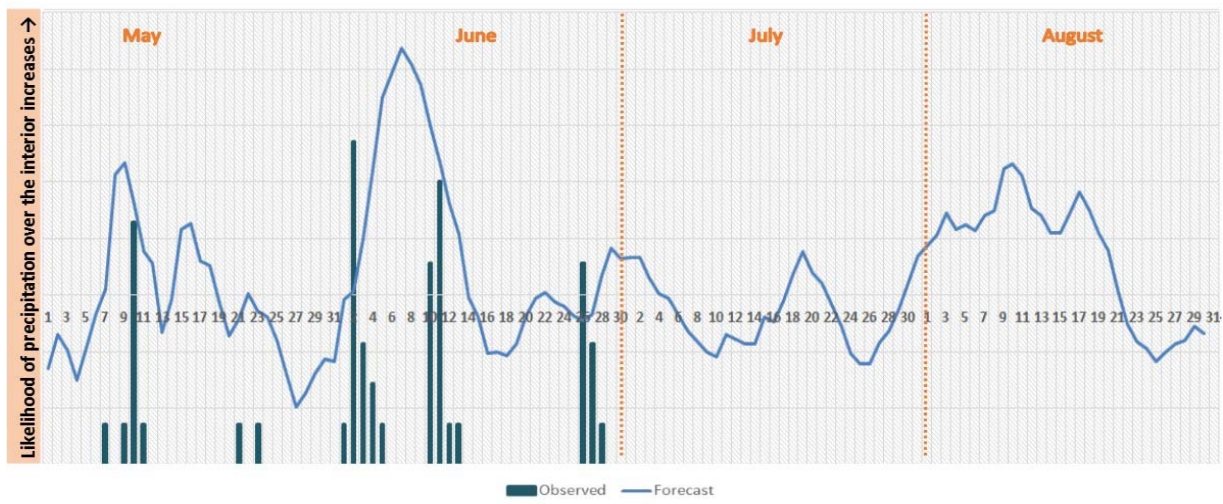


Summary

Widespread rain occurred over the winter rainfall region as well as the western to central interior due to two strong frontal systems moving over the southern to central parts and an upper-air cut-off low moving from the west coast over the central interior and then towards the southeast. Rainfall totals ranged between 5 mm and 30 mm across much of the Northern Cape, western North West and western to central Free State. Temperatures plummeted especially over the southwestern half of the country in association with the cold front, but remained relatively high over the northeastern parts.

Relatively stable conditions are expected during the coming week, with an anticyclonic circulation pattern advecting some moisture over the northeastern parts and keeping the rest of the country relatively warm. The Southern Annular Mode (SAM) has reached high positive values during the last few days, but is currently decreasing. Early indications are that another frontal system may influence the western and southern parts, bringing lower temperatures and precipitation by early next week.

During winter, similar years in the decadal rainfall cycle were not necessarily characterized by anomalously wet winters over the interior. However, conditions tended to be somewhat more unstable with precipitation over the interior during periods equivalent to 5-10 May and 1-13 June 2015. Going forward, the periods with a stronger tendency for more unstable conditions and possible precipitation over the interior include the days around 30 June, around 19 July and from early to middle August (see graph below for May to August 2015, days of the months indicated on the x-axis, noting that the observed (bar graph) is valid until 28 June).



The existence and possible strengthening of El Niño will be monitored closely – as the negative impact of ENSO on summer rainfall can be of concern.

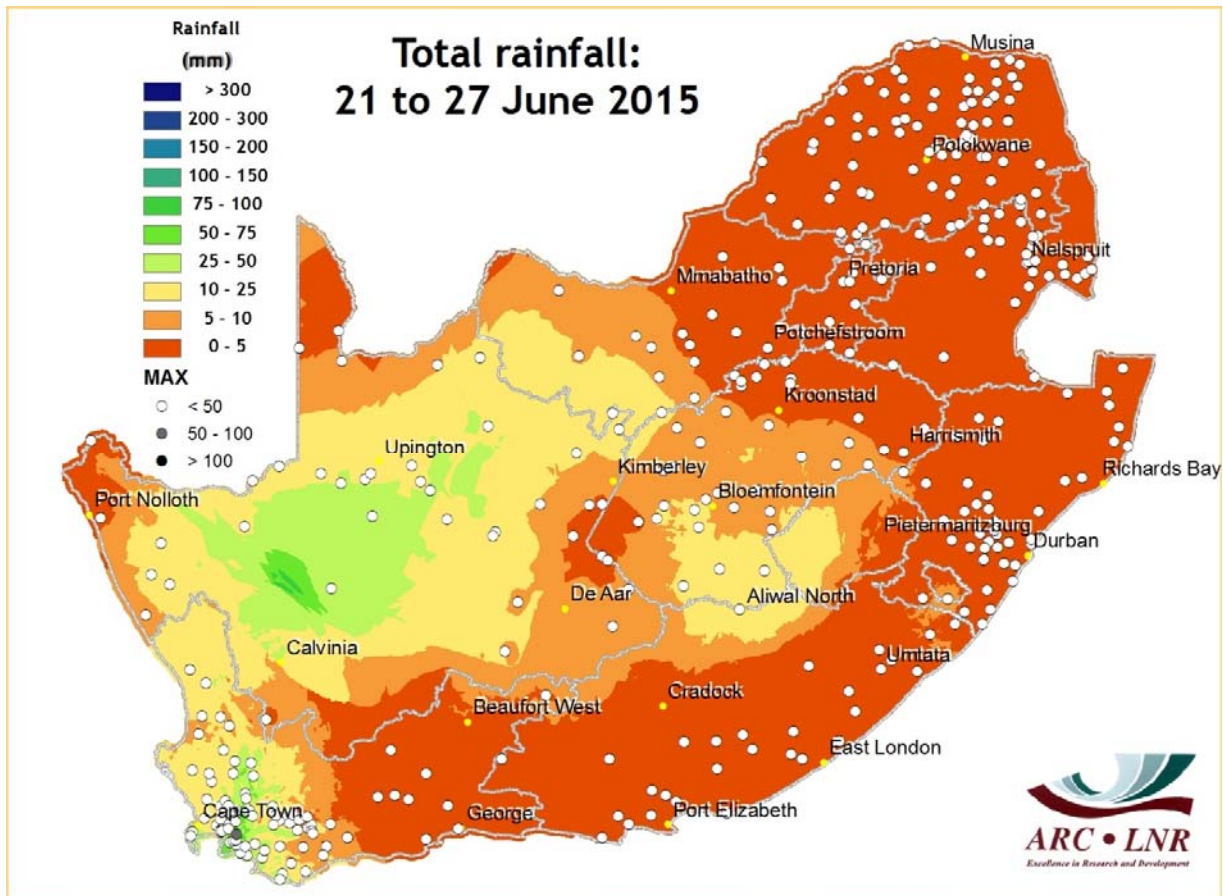
Cumulus

Absa Insurance Company
Absa Versekeringsmaatskappy



Overview of conditions over South Africa

Rainfall



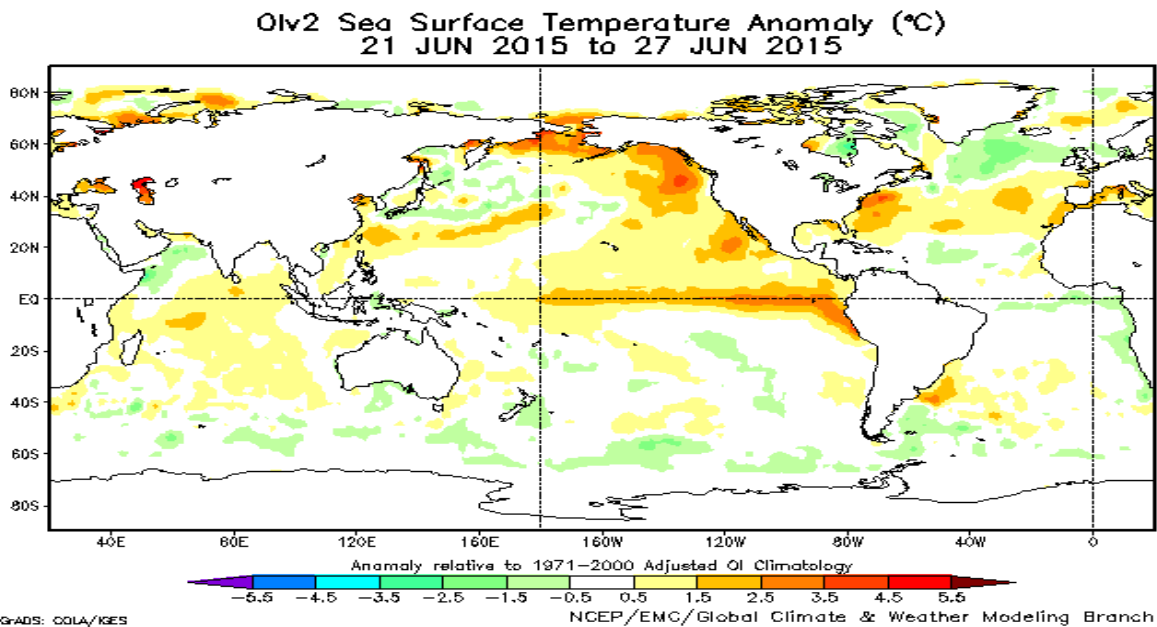
Widespread rain occurred over the northwestern to central interior, with highest falls over the northwestern parts of the Northern Cape. The western parts of the winter rainfall region also received widespread precipitation, with falls between 10 mm and 50 mm dominating, depending on topography.



Latest status of indicators of global climate

- SST (Sea Surface Temperature) anomalies in the Central-Eastern Equatorial Pacific are above normal and increasing, indicating ENSO Warm conditions,
- SSTs in the Southern Hemisphere still indicate the effect of a positive SAM, usually associated with normal to above-normal rainfall towards late summer while
- The SAM has reached high values, but is expected to decrease to neutral values over the next few days

SSTs



SST map: NOAA Climate Prediction Centre - <http://www.cpc.ncep.noaa.gov>

SSTs across the equatorial Pacific are above average. **“The 2015 El Niño continues to strengthen. Central and eastern tropical Pacific Ocean sea surface temperature indices are more than 1 °C above average for the sixth consecutive week. International climate models surveyed by the Bureau of Meteorology indicate further consolidation is likely. El Niño events typically strengthen during the second half of the year, reaching full strength during late spring or early summer. It is not possible at this stage to determine how strong this El Niño will be.”** - Australian Bureau of Meteorology-
<http://www.bom.gov.au>

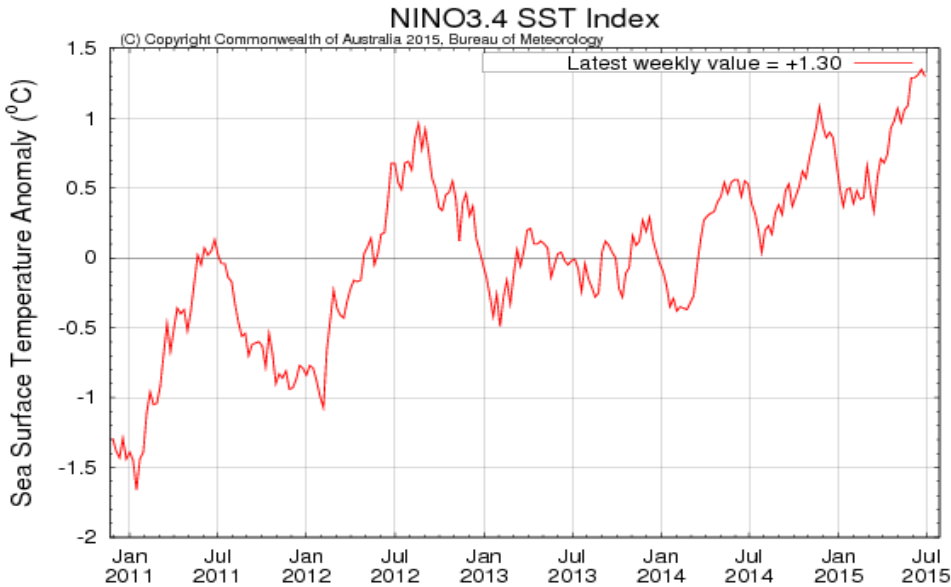
Anomalously low SSTs visible towards the High Southern Latitudes and relatively high SSTs over the Mid Latitudes reflect the positive tendency in the SAM, usually associated with above-normal rainfall over the summer rainfall region. A positive SAM may also be associated with below-normal rainfall over the winter rainfall region during most of autumn.

Cumulus

Absa Insurance Company
Absa Versekeringsmaatskappy

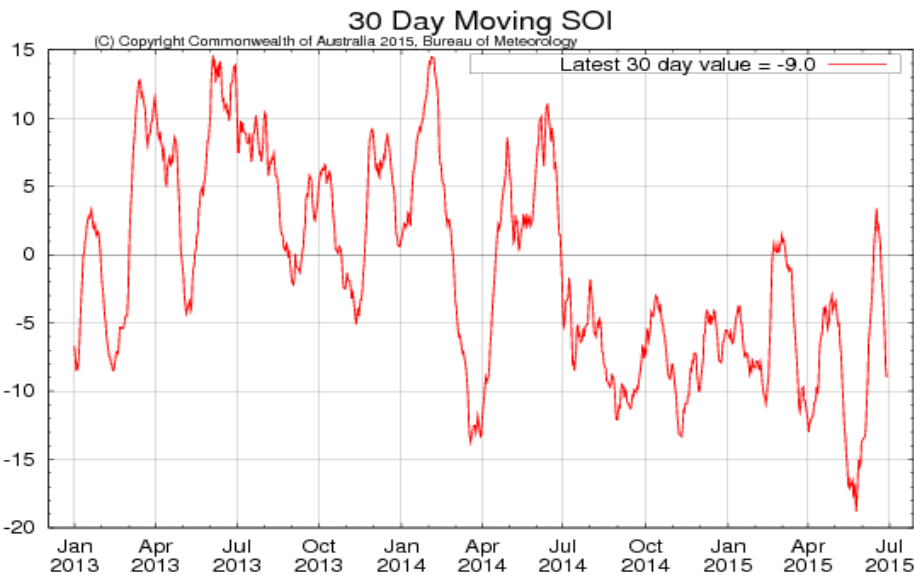


El Niño-Southern Oscillation (SSTs and SOI)



Australian Bureau of Meteorology-
<http://www.bom.gov.au>

SST anomalies over the central-to-eastern Pacific continue to increase (+1.3) as average for the last week, indicating El Niño conditions. The anomalies have increased and are the highest since the 2009/10 warm event.

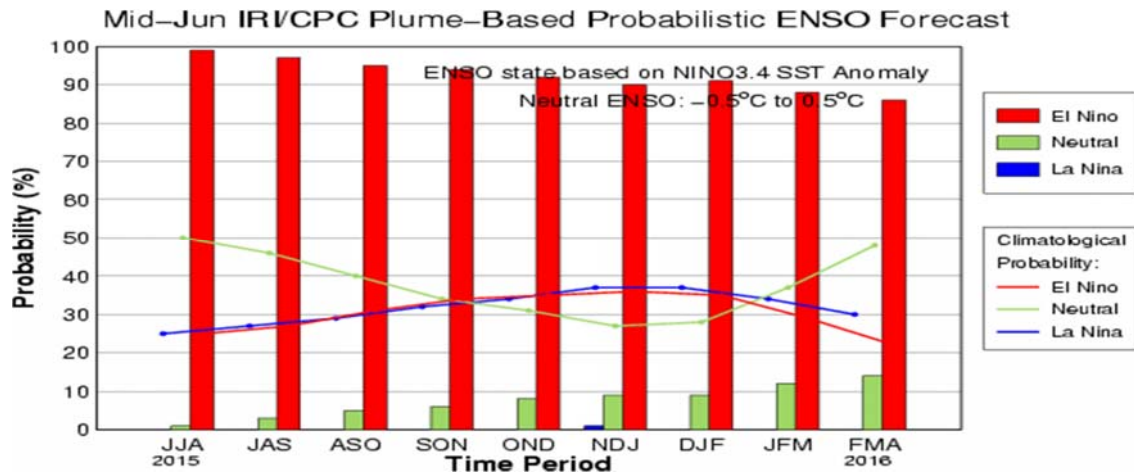


Australian Bureau of Meteorology-
<http://www.bom.gov.au>

The 30-day moving average of the SOI (-9) is an indication of atmospheric response to warm ssts over the Equatorial Pacific. (The Walker circulation refers to the location of upward and downward large scale air flow along the equator. When the SOI becomes negative, it is an indication that one of the ascending limbs of this circulation pattern, usually located over Africa, may be shifted off the continent, usually leading to lower rainfall over southern Africa).



ENSO probabilistic forecast

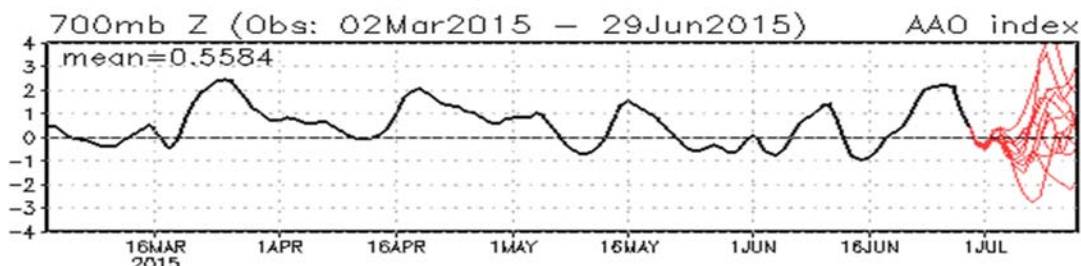


The consensus probabilistic forecast by the Climate Prediction Center (CPC) and International Research Institute for Climate and Society (IRI) indicates a 100% chance for the occurrence of warm ENSO conditions during Austral autumn and winter.

“...During late May through early-June 2015 the SST was at a moderate El Niño level. The atmospheric variables support the El Niño pattern, including weakened trade winds and excess rainfall in the east-central tropical Pacific. The consensus of ENSO prediction models indicate continuation of moderate El Niño conditions during the June-August 2015 season in progress, likely strengthening further and lasting into early 2016.” - IRI - <http://iri.columbia.edu/>

CPC ENSO outlook - http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/

Southern Annular Mode (SAM)



The Annular Mode Website - <http://www.atmos.colostate.edu/ao/index.html>

The SAM (Southern Annular Mode / Antarctic Oscillation) is an indication of the position and strength of pressure anomalies over the Southern Hemisphere. When this index is positive (negative), it is usually an indication of high-pressure (low-pressure) anomalies over the mid-latitudes. As positive anomalies over the mid-latitudes may result in strong subtropical high pressure regions over the oceanic regions surrounding South Africa, the SAM is positively (negatively) related to South African summer (winter) rainfall. Significant rainfall events in the past have been associated with strong decreases or increases in the SAM.

The SAM is currently positive, decreasing, and is expected to become neutral or negative during the next few days, likely enhancing probabilities for precipitation over the winter rainfall region.

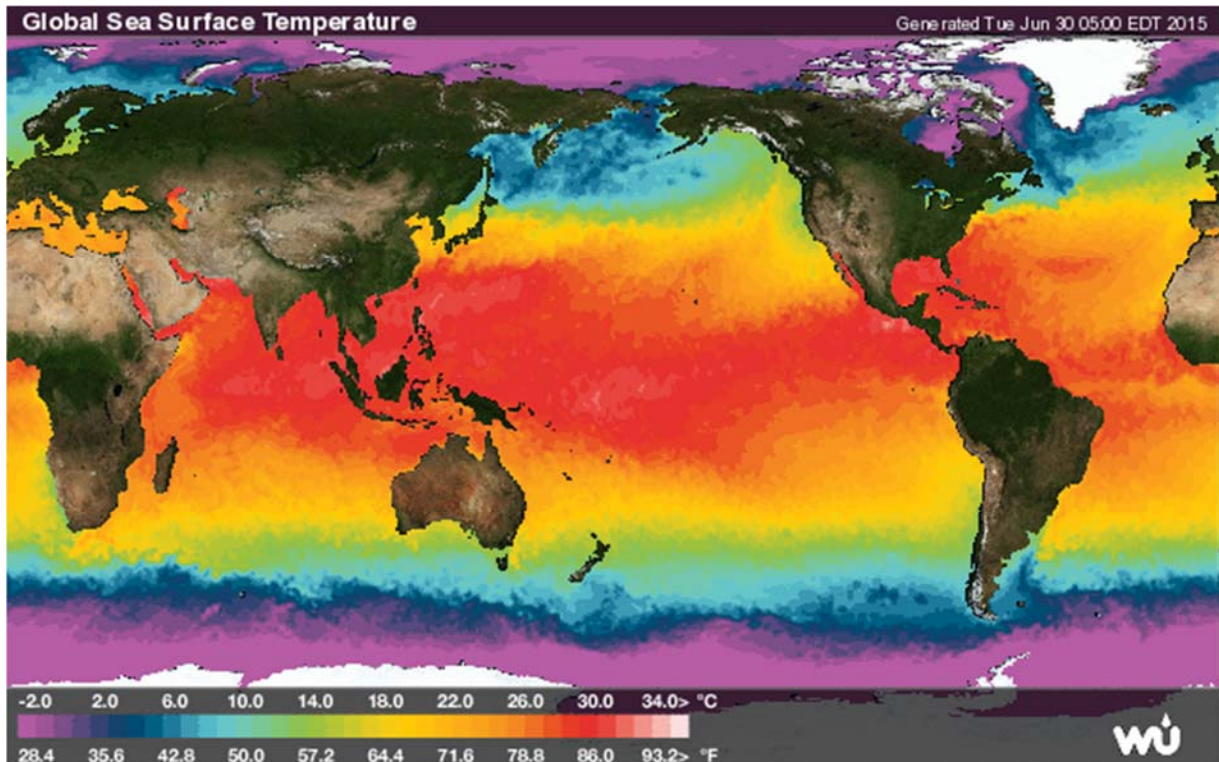
Cumulus

Absa Insurance Company
Absa Versekeringsmaatskappy



Overview of significant weather conditions during the coming week globally (Sourced from the output of Global Coupled Climate Models, published online)

Tropical Cyclones



Currently, no active tropical systems are being tracked.

Weather Underground - <http://www.wunderground.com>

Tropical Cyclone Centre La Reunion -

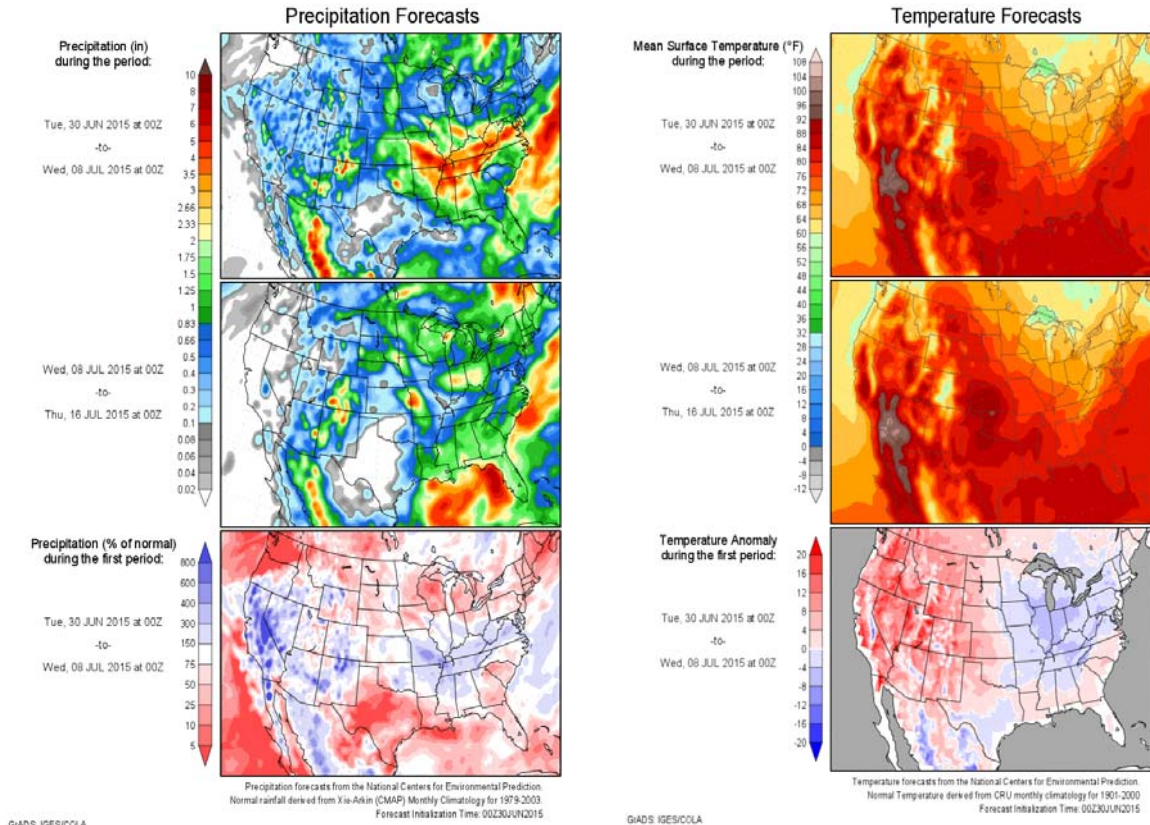
http://www.meteo.fr/temps/domtom/La_Reunion/webcmrs9.0/anglais/index.html

(CIMMS) - Tropical Cyclone Group - <http://tropic.ssec.wisc.edu/>

In any event of a tropical system posing a threat to southern Africa, the South African Weather Service (www.weathersa.co.za) will issue the relevant warnings.



Conditions over the USA, Europe and Australia (30 June - 6 July) USA

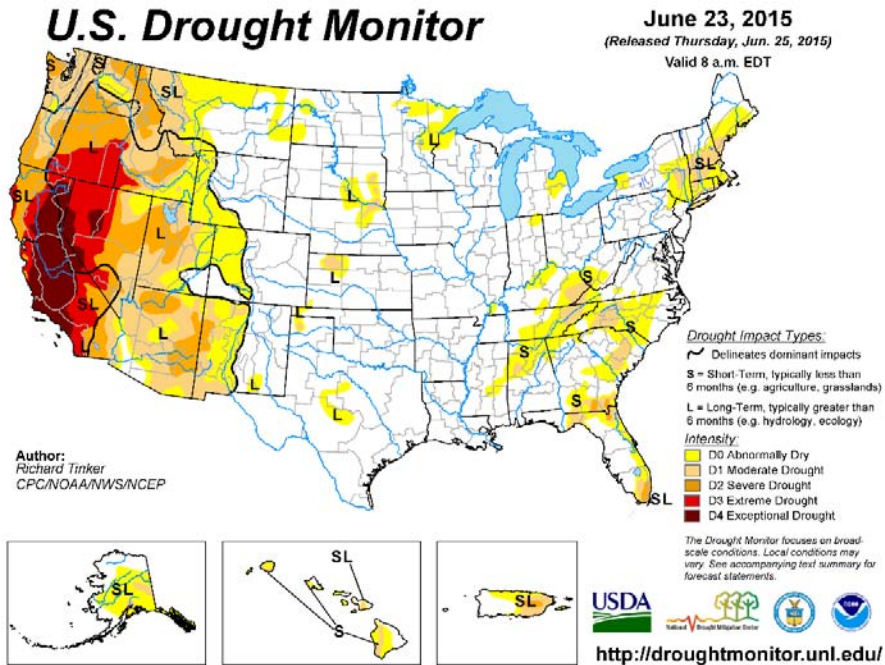


Center for Ocean-Land-Atmosphere Studies (COLA) and Institute of Global Environment and Society (IGES) - <http://Wxmaps.org>

For the next 2 days: Across the western U.S., excessive heat will continue with widespread 100-plus degree temperatures for the lower elevations of Washington, Oregon, Idaho, Nevada, and California through midweek. Across the Desert Southwest, normal hot temperatures will be present through the week. Increasing moisture from the monsoon will make it feel more humid as well as aid in thunderstorm development. - <http://www.weather.gov>

Cumulus

Absa Insurance Company
Absa Verzekeringmaatskappy



http://droughtmonitor.unl.edu/data/jpg/current/current_usdm.jpg

The drought-stricken Rockies to West Coast: Little precipitation fell from the Rockies westward to the Pacific Coast last week. Overall, there was little change in conditions except along the northern tier of states from Montana westward through Washington and Oregon. Continued dryness and exceptionally hot weather kept dryness and drought increasing most significantly across eastern Washington, central and northern Idaho, and western Montana. The entire state of Washington is now covered by D0 conditions or worse, and D2 was pulled northward along the Oregon coastline, and expanded across a large part of central Idaho and adjacent Montana. These areas recorded generally 6 to 12 inches less precipitation than normal in the last 6 months, and less than half of normal amounts in the last 60 days. In contrast, recent heavy precipitation in west New Mexico and adjacent northeast Arizona led to additional improvements in these areas despite the dry week. *-United States Drought Monitor-*
<http://droughtmonitor.unl.edu>

This information is relevant for the week ending 23 June.

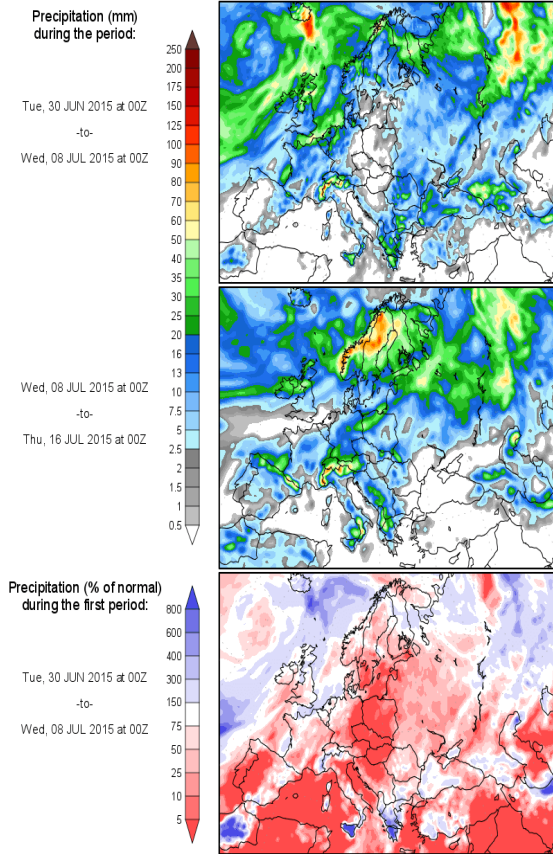
Cumulus

Absa Insurance Company
Absa Verzekeringsmaatskappy



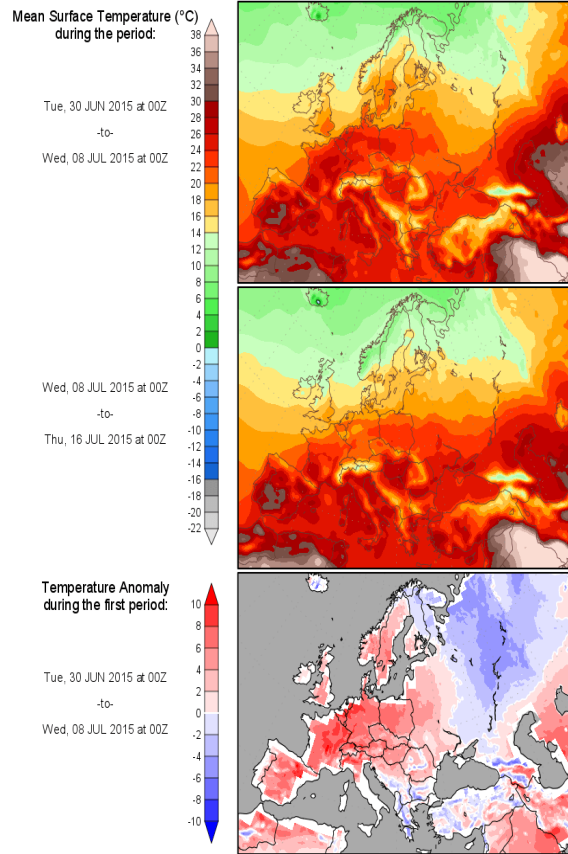
Europe

Precipitation Forecasts



GIADS IGES/COLA

Temperature Forecasts



GIADS IGES/COLA

Center for Ocean-Land-Atmosphere Studies (COLA) and Institute of Global Environment and Society (IGES) – <http://Wxmaps.org>

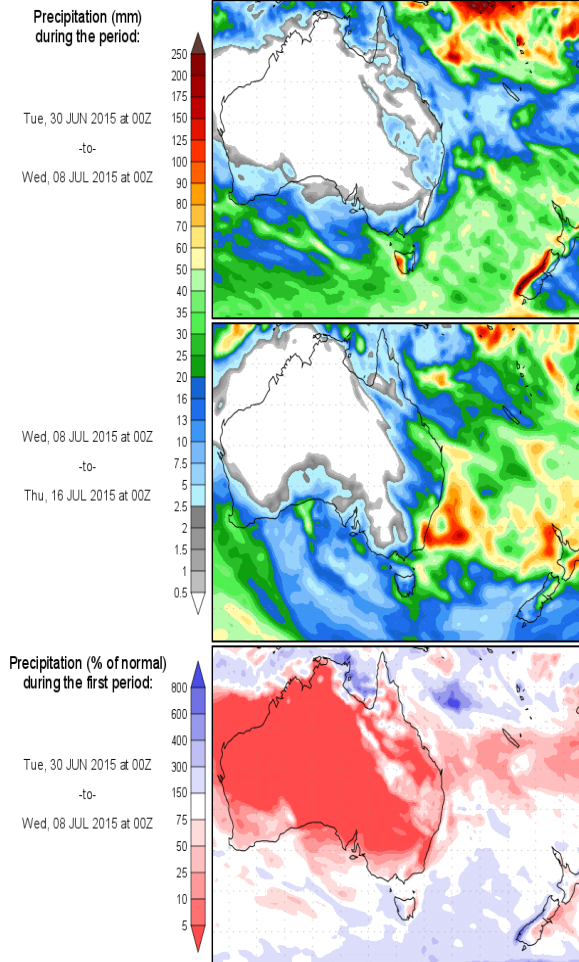
Cumulus

Absa Insurance Company
Absa Verzekeringsmaatskappy



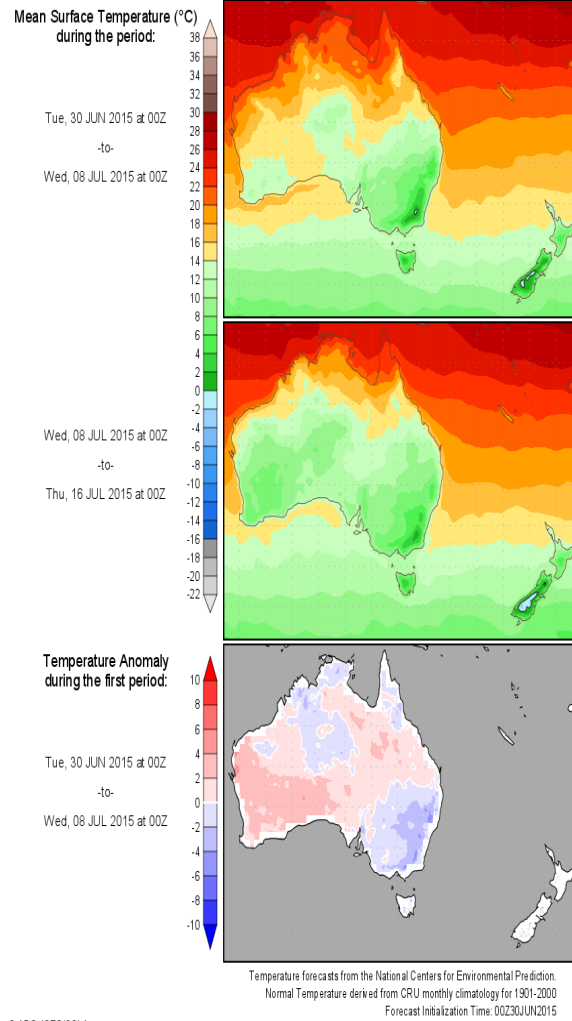
Australia

Precipitation Forecasts



GIADS: IGES/COLA

Temperature Forecasts



GIADS: IGES/COLA

Center for Ocean-Land-Atmosphere Studies (COLA) and Institute of Global Environment and Society (IGES) – <http://Wxmaps.org>



Overview of expected conditions over South Africa during the next few days

Significant weather events (30 June – 6 July)

An anticyclonic circulation over the eastern parts of South Africa and over the Indian Ocean will advect some moisture over the eastern parts, with light showers possible over the escarpment today and tomorrow. The circulation pattern should remain largely the same for the next few days, even though less rain is expected. As the easterly flow turns northerly over the central to western parts, mild to relatively warm conditions are expected to dominate throughout the week, resulting in above-normal average temperatures. A trough will build up throughout the week towards the west, and early indications are that it may result in some rain by the end of the weekend and into early next week over the winter rainfall region. Temperatures are therefore currently expected to decrease over the southwestern parts from the weekend. The flow over the northeastern parts may become more offshore, enhancing potential for development and spread of wild fires where vegetation is dry.

Maps for total rainfall and average temperature during the coming 7-day period are on the next page.

Conditions in main agricultural production regions (30 June – 6 July)

Maize production region: Partly cloudy to sunny and mild conditions are expected.

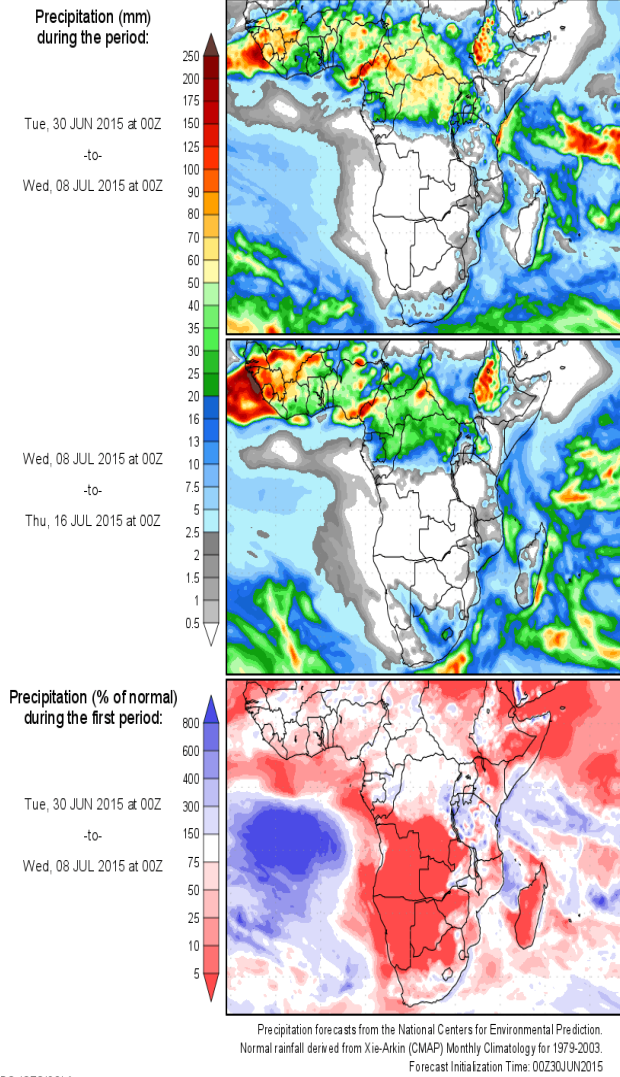
Swartland, Cape Wine Lands and Ruens: A predominantly northerly to northeasterly flow during the first few days will result in mild to warm and dry conditions, especially along the west coast. From Friday, lower temperatures may start dominating as a pre-frontal northwesterly flow sets in, turning southerly by early next week when precipitation is indicated.

Cumulus

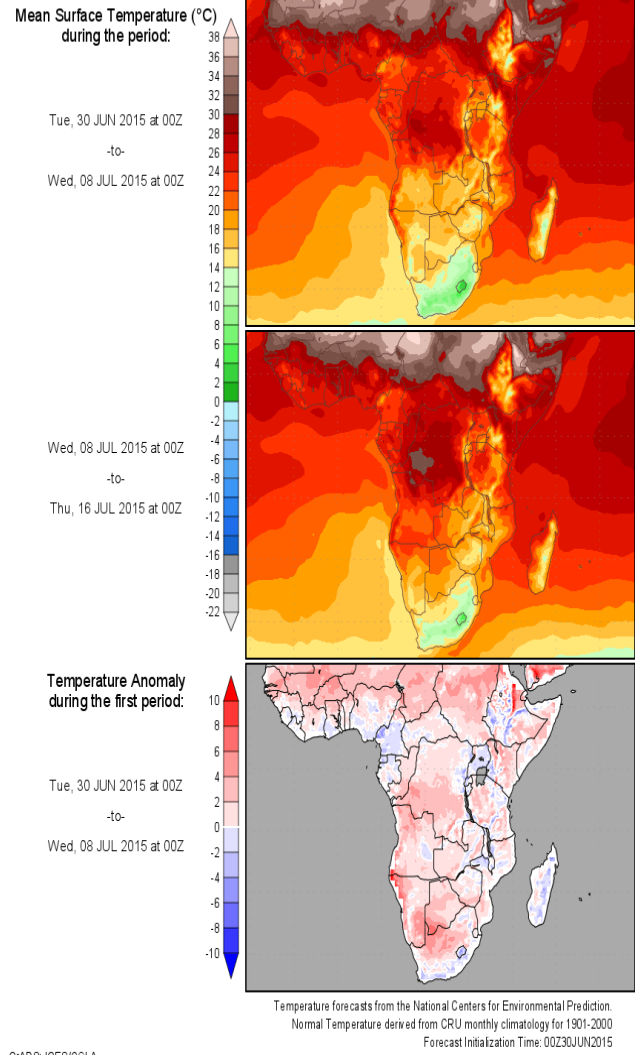
Absa Insurance Company
Absa Versekeringsmaatskappy



Precipitation Forecasts



Temperature Forecasts



Center for Ocean-Land-Atmosphere Studies (COLA) and Institute of Global Environment and Society (IGES) – <http://Wxmaps.org>

Cumulus

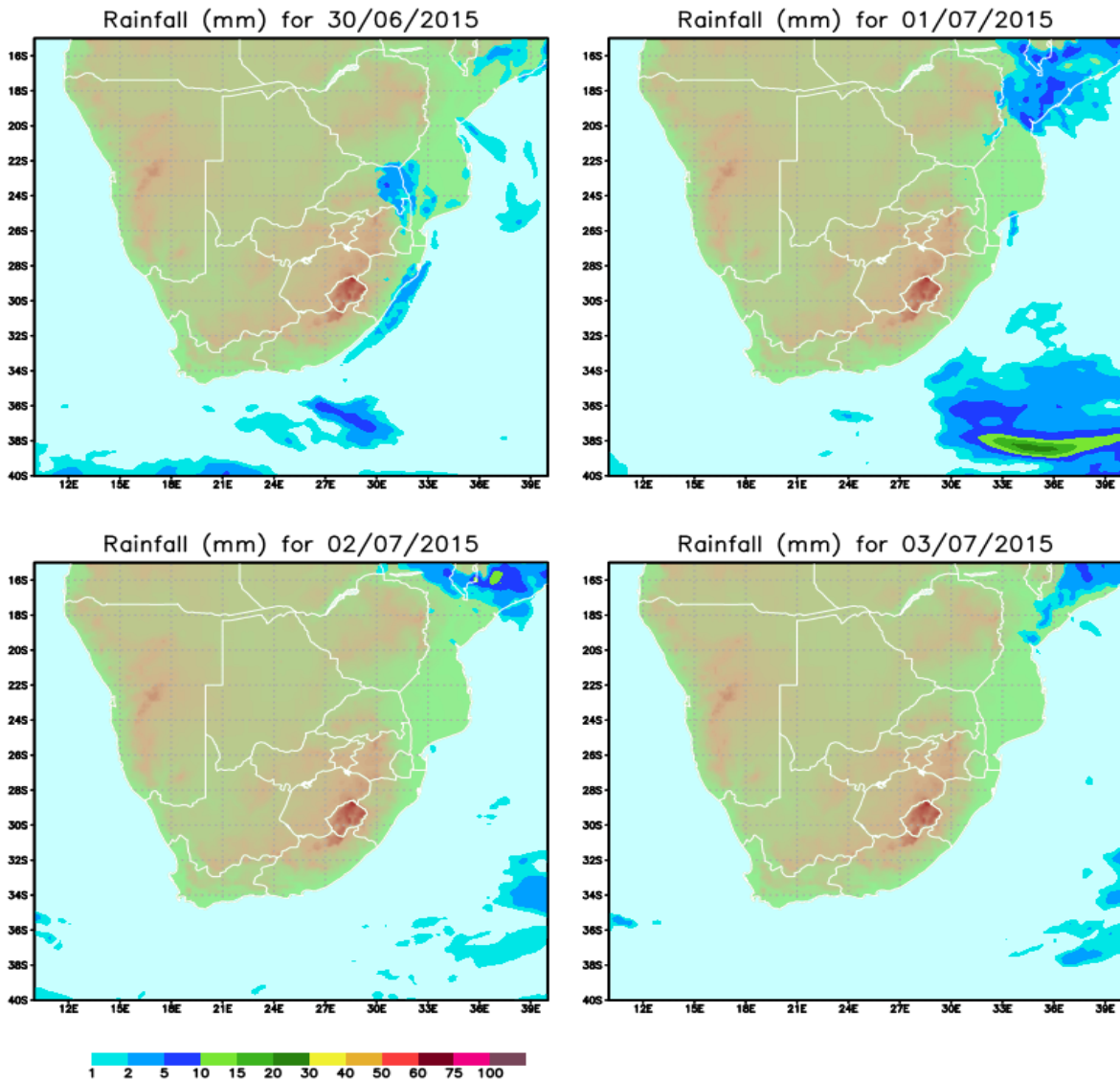
Absa Insurance Company
Absa Versekeringsmaatskappy



Daily rainfall and temperatures across South Africa

Daily rainfall (mm) for 30 June – 3 July 2015

Produced by: The Climate Studies, Modelling and Environmental Health Group of the CSIR.



Except for some showers today over the escarpment and Lowveld in the northeast, little or no precipitation is expected during the next few days.

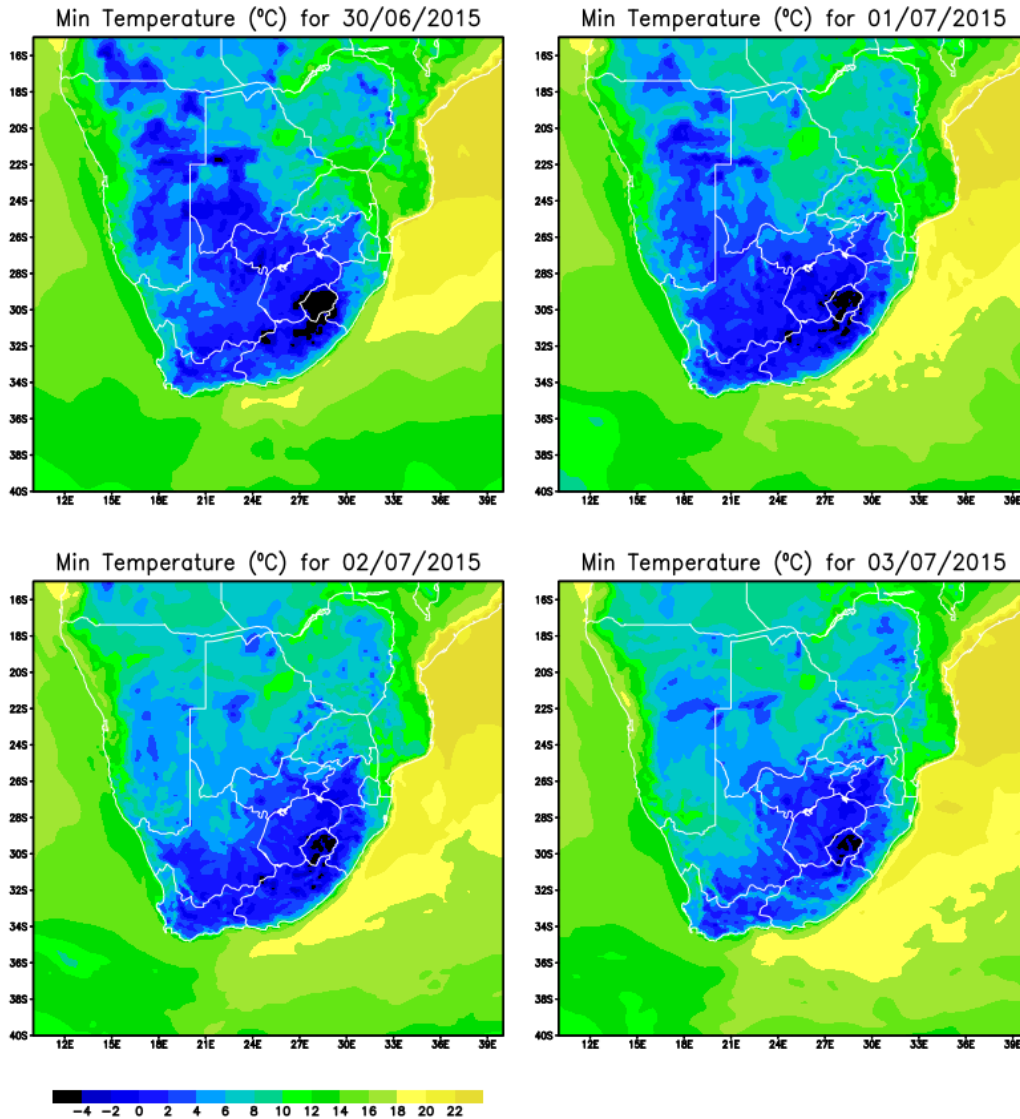
Cumulus

Absa Insurance Company
Absa Versekeringsmaatskappy



Daily minimum temperature (°C)

Produced by: The Climate Studies, Modelling and Environmental Health Group of the CSIR.



Minimum temperatures will gradually increase during the week. .

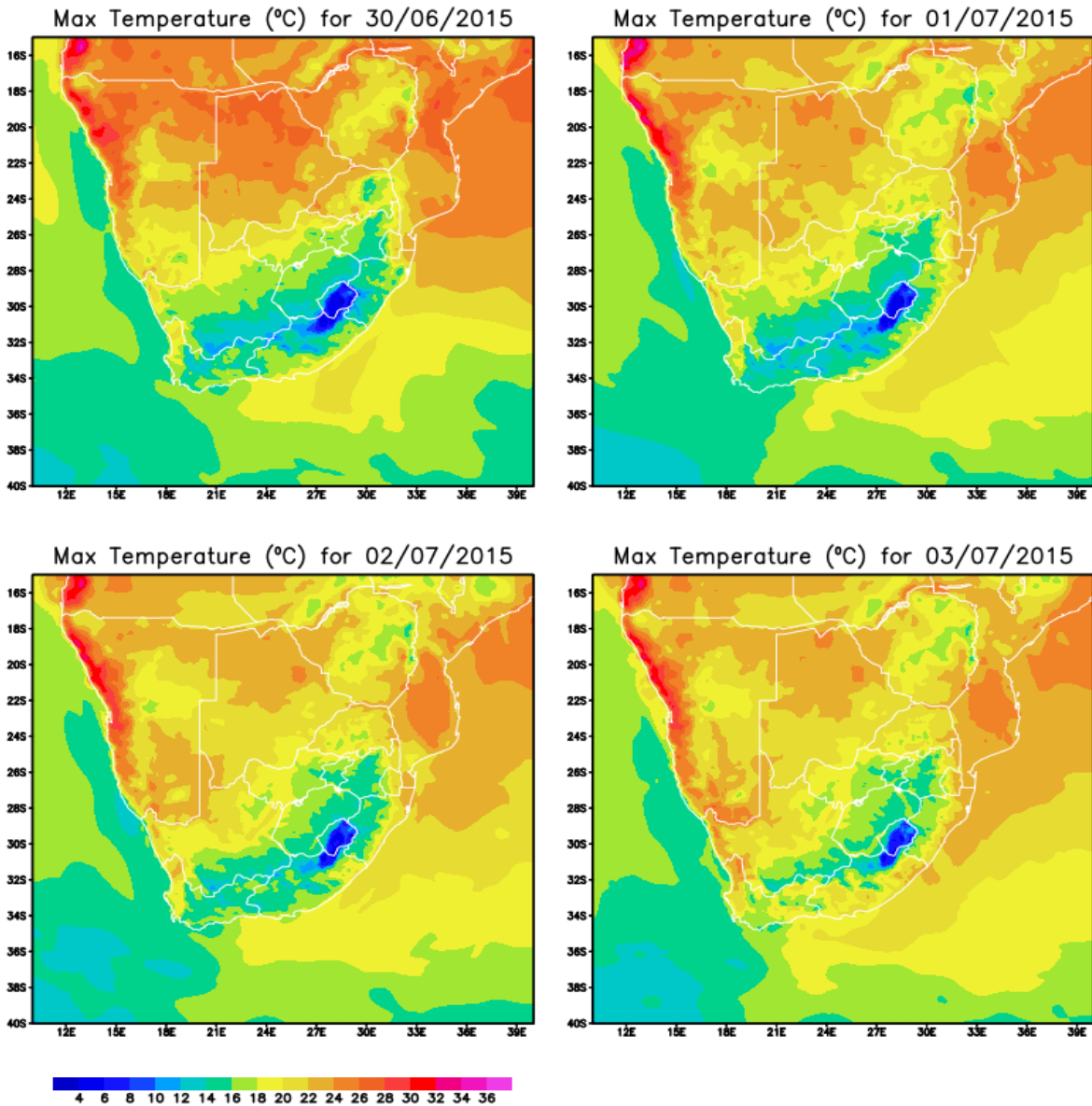
Cumulus

Absa Insurance Company
Absa Versekeringsmaatskappy



Daily maximum temperatures (°C)

Produced by: The Climate Studies, Modelling and Environmental Health Group of the CSIR.



Maximum temperatures are also expected to rise steadily and may approach the high 20's along the west coast.

Cumulus

Absa Insurance Company
Absa Versekeringsmaatskappy



Possible extreme conditions - relevant to agriculture

The South African Weather Service issues warnings for any severe weather that may develop, based on much more information (and in near-real time) than the output of one single weather model (GFS atmospheric model - *Center for Ocean-Land-Atmosphere Studies (COLA) and Institute of Global Environment and Society (IGES)* – <http://Wxmaps.org>)

considered here in the beginning of a week-long (starting 30 June) period. It is therefore advised to keep track of warnings that may be issued by the SAWS (www.weathersa.co.za) as the week progresses.

According to current model projections (GFS atmospheric model) of weather conditions during the coming week, the following may be deduced:

- A dry westerly flow over the eastern and southeastern parts (especially from the escarpment eastwards) by the weekend, combined with dry veld, may create favourable conditions for the development and spread of wild fires over those areas.



Sources of information

Rainfall, temperature and wind maps over South Africa for the past week:

Agricultural Research Council - Institute for Soil, Climate and Water (ISCW) – Climate Data Bank. Data recorded by the automatic weather station network of the ARC-ISCW.

Vegetation condition maps: Coarse Resolution Imagery Database (CRID), ARC-ISCW.

Information related to: ENSO, IOD and SOI:

Australian Bureau of Meteorology - <http://www.bom.gov.au>

Climate Prediction Center - <http://www.cpc.ncep.noaa.gov>

International Research Institute for Climate and Society- <http://iri.columbia.edu/>

Information related to the SAM:

The Annular Mode Website - <http://www.atmos.colostate.edu/ao/index.html>

SST map:

NOAA Climate Prediction Center - <http://www.cpc.ncep.noaa.gov>

Daily conditions over South Africa:

CSIR NRE (National Resources and the Environment)

“CSIR NRE produces forecasts on an experimental basis, doesn’t guarantee the accuracy of the daily forecasts and cannot be held accountable for the results of decisions taken based on the forecasts”

Tropical cyclone/hurricane/typhoon information:

Weather Underground - <http://www.wunderground.com>

Cooperative Institute for Meteorological Satellite Studies (CIMMS) - Tropical Cyclone Group -<http://tropic.ssec.wisc.edu/>

Tropical Cyclone Centre La Reunion -http://www.meteo.fr/temps/domtom/La_Reunion/webcmrs9.0/anglais/index.html

Information on drought conditions over the USA:

NOAA National Weather Service - <http://www.weather.gov>

United States Drought Monitor - <http://droughtmonitor.unl.edu>

Precipitation and temperature outlooks for the coming week:

Center for Ocean-Land-Atmosphere Studies (COLA) and Institute of Global Environment and Society (IGES) – <http://Wxmaps.org>

“COLA and IGES make no guarantees about and bear no responsibility or liability concerning the accuracy or timeliness of the images being published on these web pages. All images are generated by COLA and do not represent the actual forecasts issued by the National Weather Service. These products are not a substitute for official forecasts and are not guaranteed to be complete or timely. The underlying data are the direct product of the various operational forecast models run by the National Centers for Environmental Prediction, National Weather Service, NOAA and are supplied without interpretation or correction.”