Africa RiskView

END OF SEASON REPORT | MAURITANIA (2016)

Ce **rapport *Africa RiskView* de fin de saison** est une publication de la **Mutuelle panafricaine de gestion des risques ARC** (African Risk Capacity). Le rapport porte sur les estimations d'*Africa RiskView* en termes de précipitations, de sécheresse et de nombre de personnes touchées en les comparant aux informations du terrain et provenante de sources externes. Le rapport sert aussi comme base pour le travail de validation des estimations générées par *Africa RiskView*, que chaque pays effectue à la fin de la saison assurée. Cette validation vise à évaluer la performance du modèle et assurer que le risque de sécheresse du pays est bien reproduit par *Africa RiskView* pour le suivi de la sécheresse et l'assurance.

Highlights:

Rainfall:

- Overall good performance of the 2016 rainy season in most of Mauritania, with erratic rainfall in the western parts of the country.

Drought:

- The season throughout Mauritania's croplands and rangelands areas performed well with the exception of the western parts of the country (Trarza), where below normal WRSI values prevailed at the end of the 2016 season.

Affected Populations:

- *Africa RiskView* estimates that only some localised areas in western Mauritania were affected by drought conditions. Overall, around 25,000 people were estimated to be affected in Trarza's agricultural areas, which remains well below the modelled historical average of around 140,000 people.

ARC Risk Pool:

- Due to the overall good performance of the season, the trigger for a payout from ARC Ltd was not reached at the end of the 2016 agricultural season.

Rainfall

The rainy season in Mauritania starts in late June and lasts until mid-November. During the 2016 season, rains varied significantly across the country, in line with the expected geographical climatological variations. Southern Mauritania, including the southern parts of Assaba, Guidimaka and Hodh el Gharbi, received cumulative rains between 500 and 700 mm. Conversely, regions further north, including Gorgol and northern Assaba, only recorded rains of between 200 to 500 mm. Compared to the 2001-15 average, rainfall was average to above average throughout most of Mauritania. Parts of Hodh el Gharbi in south-central Mauritania recorded excess rains of up to over 150% of the 2001-15 average. Only some localised coastal areas of south-western Mauritania recorded rainfall deficits of up to 30% below average.

Regarding the spatial and temporal distribution of the rains, satellite rainfall estimates indicate that at the national level, the season started in late June and progressed with normal to above normal rainfall, with slightly below normal rains in early August and early October. At regional level, the western parts of the country (Brakna and Gorgol) received little to no rains in early August, and rainfall was erratic throughout the season in Trarza in south-western Mauritania. Conversely, eastern and central Mauritania experienced mostly normal to above normal rains throughout the 2016 season.

Drought

The in-country Technical Working Group (TWG) customised *Africa RiskView* to model the impact of drought on sorghum in the country's agricultural and agro-pastoral areas, and on rangeland in agro-pastoral and pastoral livelihood system areas. For the agricultural and agro-pastoral zones, *Africa RiskView* suggests that the planting conditions set during the in-country customisation of the model were reached at the beginning of the sowing window in late June in the southern parts of Mauritania, namely in Guidimaka, southern Assaba, Hodh el Gharbi and southern Hodh ech Chargui. Planting occurred slightly later in mid-July in areas further north, including northern Assaba and northern Hodh el Gharbi, while planting conditions were only reached at the end of the sowing window in mid-August (11-20 August) in agricultural areas of western Mauritania (Brakna). Compared to normal planting dates based on the 2001-15 average, planting occurred 10-20 days later than normal in these region, while planting was normal to slightly early (up to 10 days) in central and eastern Mauritania.

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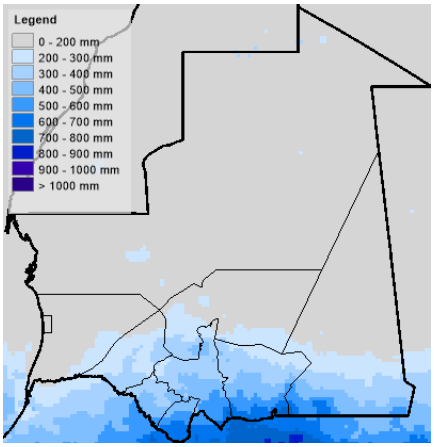
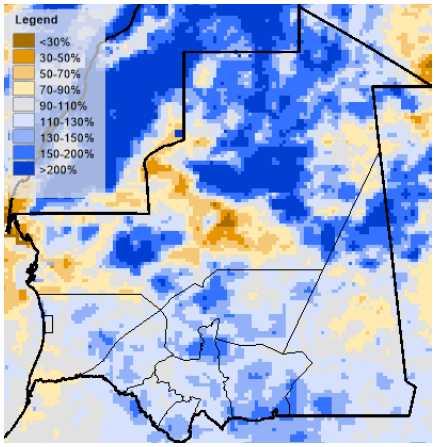
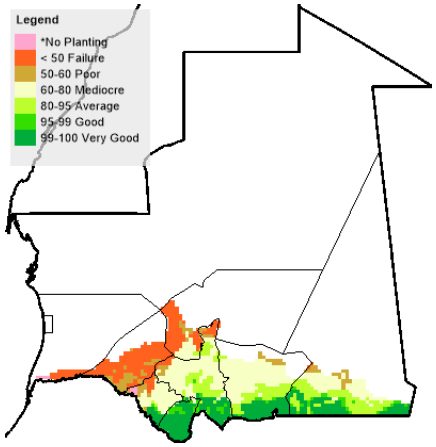


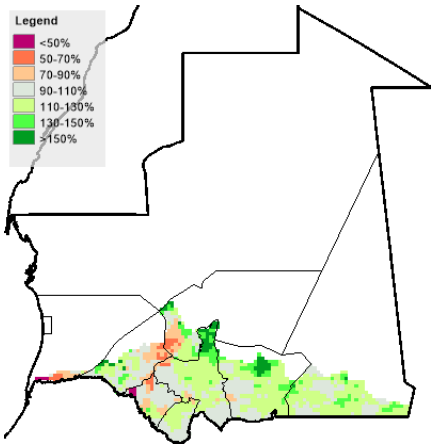
CUMULATIVE RAINFALL IN MM, 21 JUN-20 NOV 2016, MAURITANIA (RFE2)



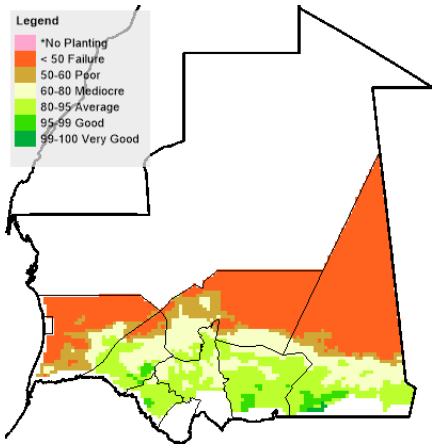
CUMULATIVE RAINFALL IN % OF 2001-15 AVERAGE, 21 JUN-20 NOV 2016, MAURITANIA (RFE2)



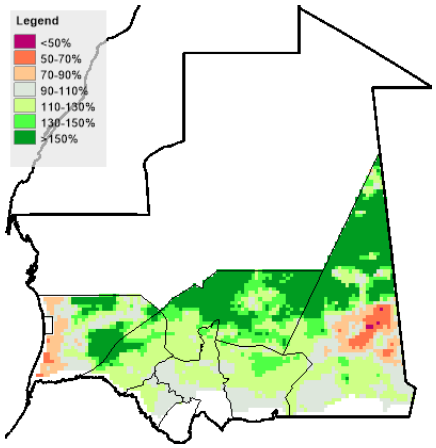
END-OF-SEASON CROP WRSI, MAURITANIA, 2016 AGRICULTURAL SEASON



END-OF-SEASON CROP WRSI COMPARED TO 5-YEAR AVERAGE, MAURITANIA, 2016 AGRICULTURAL SEASON



END-OF-SEASON RANGELAND WRSI, MAURITANIA, 2016 AGRICULTURAL SEASON



END-OF-SEASON RANGELAND WRSI COMPARED TO 5-YEAR AVERAGE, MAURITANIA, 2016 AGRICULTURAL SEASON

According to *Africa RiskView*, the end-of-season WRSI values for Mauritania's agricultural areas show a high variability across the country. In the southern parts of the country, namely in Guidimaka and the southern parts of Assaba, Hodh el Gharbi and Hodh ech Chargui, the water requirements of the reference crop (sorghum) were fully satisfied at the end of the 2016 season. Further north, mediocre WRSI (60-80 based on FEWS NET's WRSI classification) prevailed, particularly in Gorgol, central and northern Assaba, and parts of Hodh el Gharbi and Hodh ech Chargui, while poor WRSI values were prevalent in Brakna in western Mauritania, where the crop water requirements were not met. Compared to the benchmark selected by the TWG to model normal conditions (average of the previous 5 years), the season performed better than normal in most agricultural areas, with the exception of some pockets of below normal WRSI conditions in central Mauritania (north-eastern Brakna and western Tagant). In addition, the very limited agricultural areas in Trarza in the south-west experienced a very poor seasonal performance according to *Africa RiskView*.

To model drought impact on the country's pastoral areas, the TWG customised *Africa RiskView* using a rangeland WRSI. The end-of-season rangeland WRSI values follow the rainfall patterns discussed in the previous section of this report, with gradually decreasing WRSI values from south towards the drier north. Compared to the 5-year average, normal to above normal rangeland conditions prevailed in most pastoral areas, with the exception of pockets of below normal WRSI in the far west (western Trarza) and east (eastern Hodh ech Chargui) of the country.

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Africa RiskView's WRSI calculations compared well with FEWS NET's regional WRSI model for both croplands and rangelands, which also suggest that the season performed well in most of Mauritania. It is important to note that FEWS NET does not include all agricultural and pastoral areas included by the TWG in the customisation of *Africa RiskView*. Information from the field indicates that agricultural production has decreased by 17% compared to 2015, and is 10% below average. However, no concerns over the performance of *Africa RiskView* were raised during the in-country validation of the modelled estimates, as the TWG confirmed that the modelled estimates corresponded to the situation on the ground.

Affected Populations

Based on the customisation of *Africa RiskView* selected by the TWG for the 2016/17 ARC Risk Pool, around 760,000 people are vulnerable to drought in Mauritania. At the end of the 2016 season, *Africa RiskView* estimates that out of these, only 25,000 people were affected. Drought only impacted vulnerable people in Trarza in south-western Mauritania, no drought impacts were observed in the rest of the country. This figure remains well below the modelled historical average of around 140,000 people affected by drought in Mauritania, and the insurance triggering threshold of around 460,000 people. Since 2001, the country has experienced four major drought events according to *Africa RiskView*, namely in 2002, 2004, 2011 and 2014, with the latter triggering a payout of over USD 6 million in early 2015 from ARC Ltd.

The 2016 Cadre Harmonisé exercise, concluded in November 2016, found that nearly 120,000 people were food insecure at the time of the analysis, with a projected increase to nearly 450,000 people during the peak lean season in mid-2017. Discussions with in-country technical experts suggested that these figures were not directly attributed to the impact of drought in 2016, but rather to chronic factors and underlying vulnerabilities.

ARC Risk Pool

Mauritania has been a member of the ARC Risk Pool since the first pool in 2014/15. In that year, the country received a payout of over USD 6 million, due to the poor performance of the 2014 agricultural season in West Africa. During the current pool, no payout was triggered from ARC Ltd, as the attachment level selected by the Government of Mauritania (the equivalent of around 460,000 drought affected people as modelled by *Africa RiskView*) was not reached.

The in-country Technical Working Group with support from the ARC Secretariat is currently reviewing the customisation of *Africa RiskView* in view of Mauritania's participation in the 2017/18 ARC Risk Pool. The exercise aims at reviewing the drought index parameters used by the model, as well as updating input data such as the vulnerability profile and poverty information used by *Africa RiskView*. Potential improvements to the model will help ensure that drought risks are accurately reproduced for drought monitoring and insurance coverage and that the modelling continues to evolve as new information is reported and gathered.

Africa RiskView

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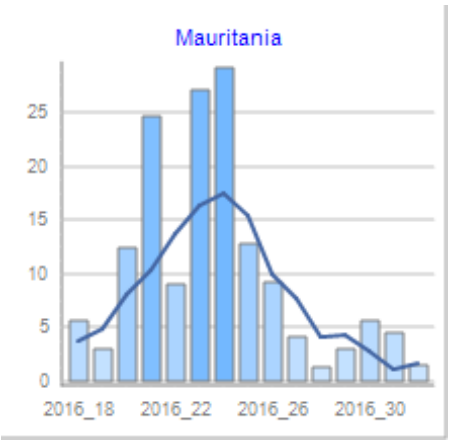
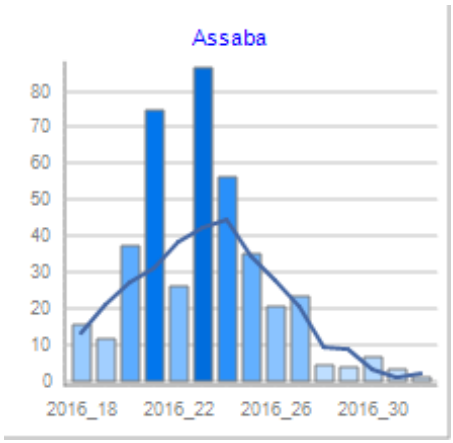
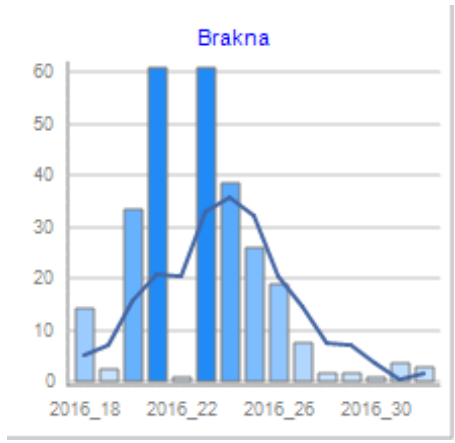


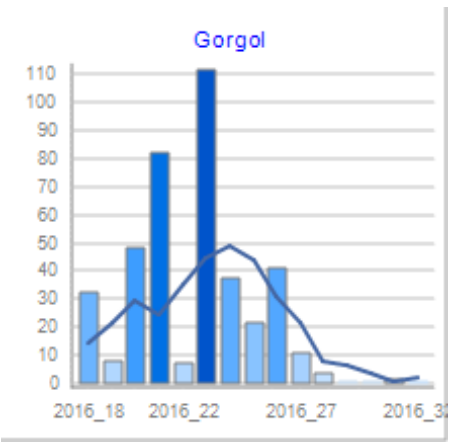
DEKADAL RAINFALL IN MM COMPARED TO 2001 -15 AVERAGE (BLUE LINE), 21 JUN-20 NOV 16, MAURITANIA



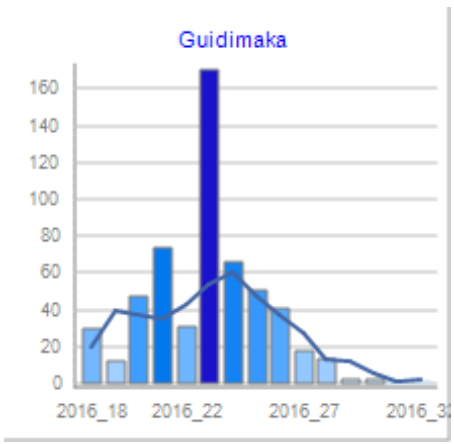
DEKADAL RAINFALL IN MM COMPARED TO 2001 -15 AVERAGE (BLUE LINE), 21 JUN-20 NOV 16, ASSABA, MAURITANIA



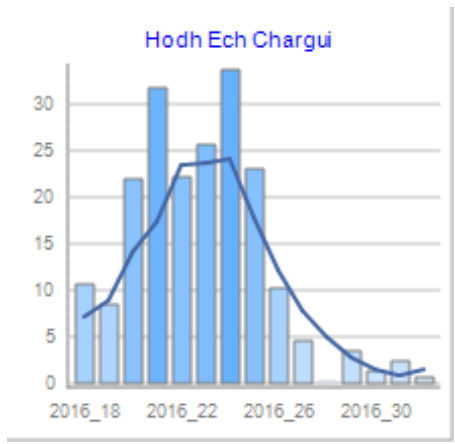
DEKADAL RAINFALL IN MM COMPARED TO 2001 -15 AVERAGE (BLUE LINE), 21 JUN-20 NOV 16, BRAKNA, MAURITANIA



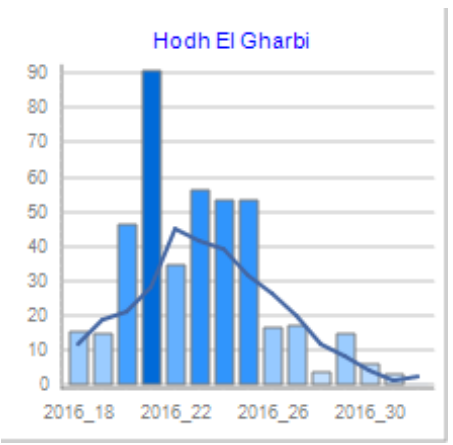
DEKADAL RAINFALL IN MM COMPARED TO 2001 -15 AVERAGE (BLUE LINE), 21 JUN-20 NOV 16, GORGOL, MAURITANIA



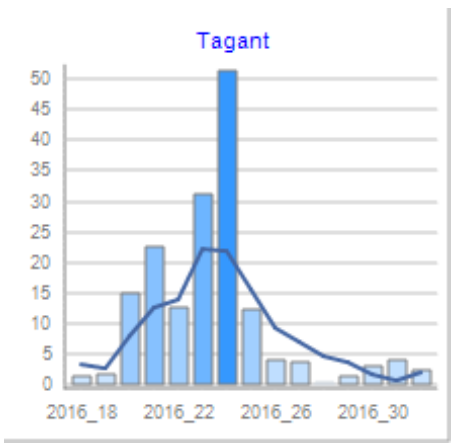
DEKADAL RAINFALL IN MM COMPARED TO 2001 -15 AVERAGE (BLUE LINE), 21 JUN-20 NOV 16, GUIDIMAKA, MAURITANIA



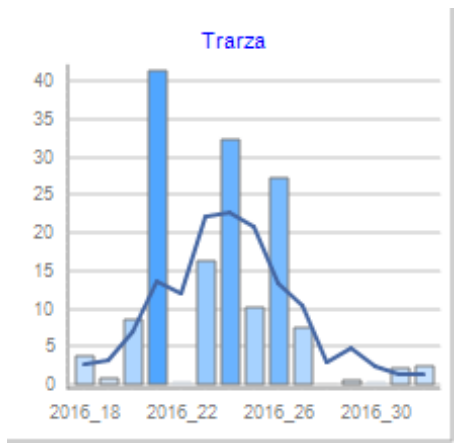
DEKADAL RAINFALL IN MM COMPARED TO 2001 -15 AVERAGE (BLUE LINE), 21 JUN-20 NOV 16, HODH ECH CHARGUI, MAURITANIA



DEKADAL RAINFALL IN MM COMPARED TO 2001 -15 AVERAGE (BLUE LINE), 21 JUN-20 NOV 16, HODH EL GHARBI, MAURITANIA



DEKADAL RAINFALL IN MM COMPARED TO 2001 -15 AVERAGE (BLUE LINE), 21 JUN-20 NOV 16, TAGANT, MAURITANIA



DEKADAL RAINFALL IN MM COMPARED TO 2001 -15 AVERAGE (BLUE LINE), 21 JUN-20 NOV 16, TRARZA, MAURITANIA

For more information visit our website: www.africanriskcapacity.org

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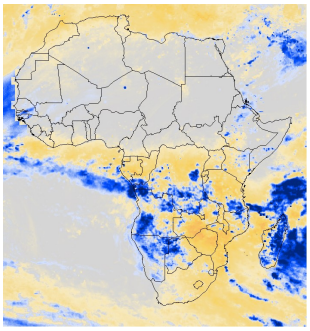
About ARC:

The **African Risk Capacity (ARC)** is a specialised agency of the African Union designed to improve the capacity of AU Member States to manage natural disaster risk, adapt to climate change and protect food insecure populations.

The ***Africa RiskView*** software is the technical engine of ARC. It uses satellite-based rainfall information to estimate the costs of responding to a drought, which triggers a corresponding insurance payout.

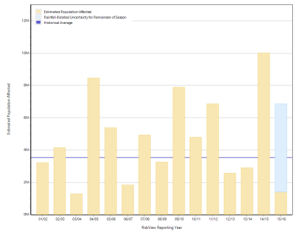
The **ARC Insurance Company Limited** is the financial affiliate of the ARC Agency, which pools risk across the continent through issuing insurance policies to participating countries.

Note on *Africa RiskView's* Methodology:

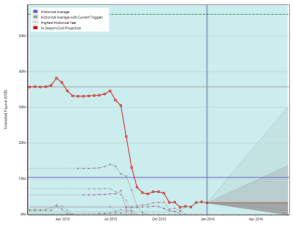


Rainfall: *Africa RiskView* uses various satellite rainfall datasets to track the progression of rainy seasons in Africa. Countries intending to participate in the ARC Risk Pool are required to customise the rainfall component by selecting the dataset which corresponds the best to the actual rainfall measured on the ground.

Drought: *Africa RiskView* uses the Water Requirements Satisfaction Index (WRSI) as an indicator for drought. The WRSI is an index developed by the Food and Agriculture Organisation of the United Nations (FAO), which, based on satellite rainfall estimates, calculates whether a particular crop is getting the amount of water it needs at different stages of its development. To maximise the accuracy of *Africa RiskView*, countries intending to take out insurance customise the software's parameters to reflect the realities on the ground.



Affected Populations: Based on the WRSI calculations, *Africa RiskView* estimates the number of people potentially affected by drought for each country participating in the insurance pool. As part of the in-country customisation process, vulnerability profiles are developed at the sub-national level for each country, which define the potential impact of a drought on the population living in a specific area.



Response Costs: In a fourth and final step, *Africa RiskView* converts the numbers of affected people into response costs. For countries participating in the insurance pool these national response costs are the underlying basis of the insurance policies. Payouts will be triggered from the ARC Insurance Company Limited to countries where the estimated response cost at the end of the season exceeds a pre-defined threshold specified in the insurance contracts.