# AFRICA RISKVIEW SOFTWARE SUITE

The *Africa RiskView* software is the technical engine of the African Risk Capacity (ARC) Agency. The software tool allows for the monitoring of seasons and the estimation of the impact of disaster events in terms of numbers of people affected and the associated response costs. Packages included in the *Africa RiskView* suite include the *Africa RiskView* Drought and the ArcCalculator Drought. Software packages implementing the *Africa RiskView* River Flood model and the Tropical Cyclone model are currently under development.

Africa RiskView Drought

Africa RiskView Drought is a feature-rich desktop application that offers extensive functionalities for the visualisation of drought indicators and the customisation of the *Africa RiskView* drought model, including import custom datasets, location specific parameters, visualization of in-season graphs as well as historical data series and exporting the results of the model to other formats. It uses satellite-based rainfall information to model the progression of agricultural and rangeland seasons across the continent, to quantify the impact on the population, and estimate the cost of assisting the affected people in response to a drought event. *Africa RiskView* drought modelling is currently based on the Water Requirements Satisfaction Index (WRSI). This index was developed by the United Nations Food and Agriculture Organisation (FAO) in the 1970s and is well accepted in the early warning community.

The *Africa RiskView* drought application can be downloaded from *http://www.africariskview.org/download.aspx*. Prospective users can request licenses for the software by registering on the *Africa RiskView* website.
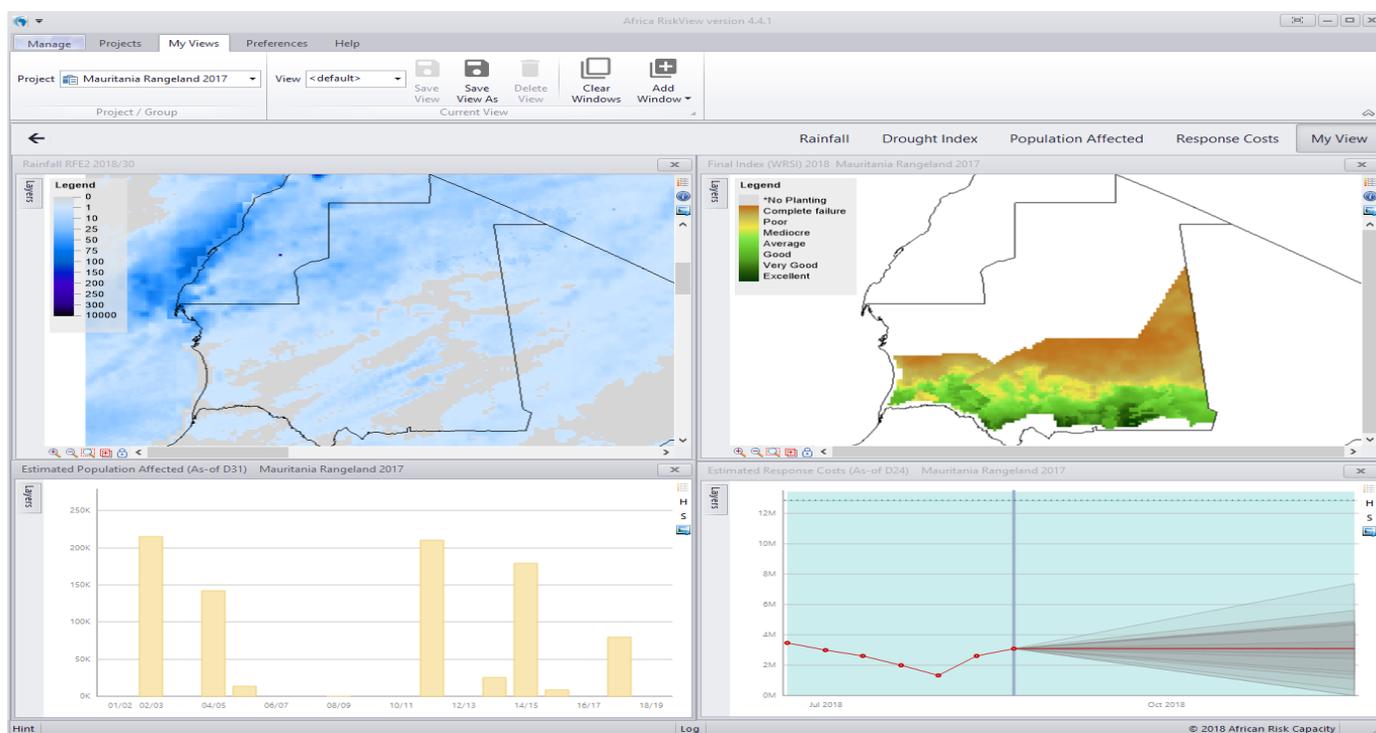
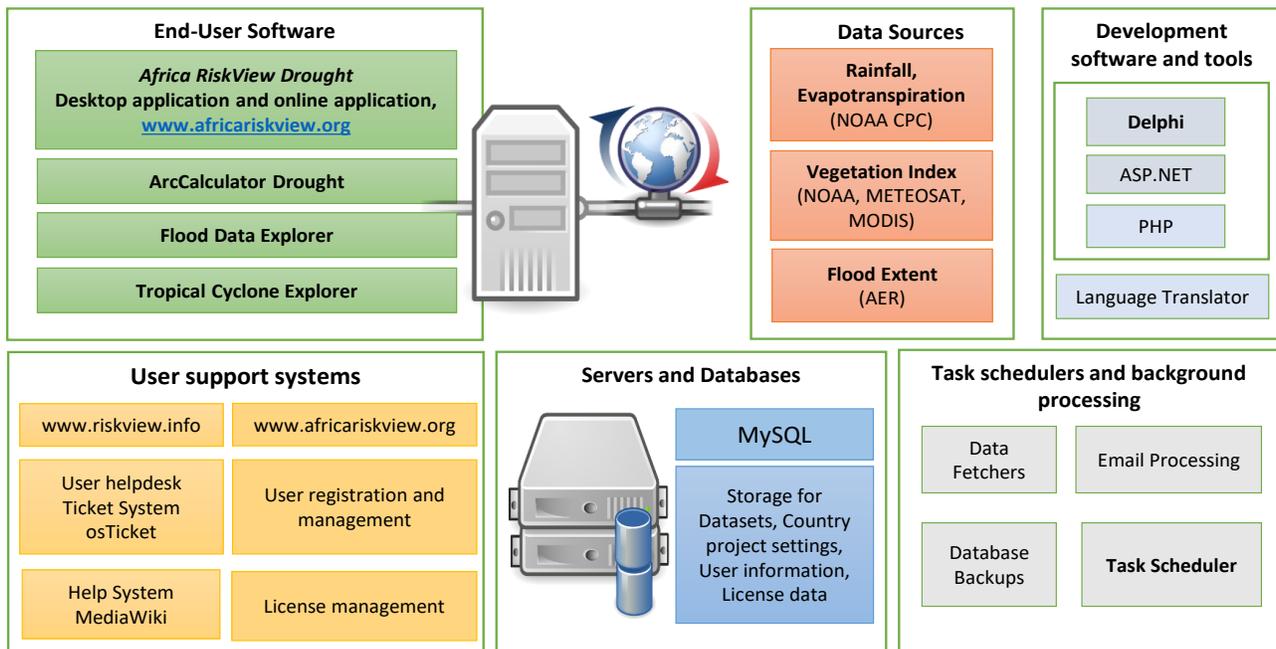## *ArcCalculator Drought (Calculation engine)*

ArcCalculator Drought is a stand-alone desktop application that independently implements the ARC's Drought Model using, for each country participating in the risk pool, the parameter files exactly as described in the insurance policy. The application is commonly referred to as "the calculation engine". It is used by ARC Ltd for the underwriting process.

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Africa RiskView online, *www.africariskview.org*

Just like the *Africa RiskView* Drought desktop application, the online application gives users access to views of rainfall performance, the outputs of the drought model, including the customised drought index, estimated population affected and corresponding response costs. The main difference between the desktop and the online application is that the online application does not provide the option to customise the parameters of the drought model, which the desktop application does. It was targeted at decision makers who require summaries of national risk profiles and possible insurance payouts. It is also used for managing user registrations, assigning user rights and privileges, and managing software licenses.

System Architecture

End-User Software
- *Africa RiskView Drought* Desktop application and online application, www.africariskview.org
- ArcCalculator Drought
- Flood Data Explorer
- Tropical Cyclone Explorer

Data Sources
- Rainfall, Evapotranspiration (NOAA CPC)
- Vegetation Index (NOAA, METEOSAT, MODIS)
- Flood Extent (AER)

Development software and tools
- Delphi
- ASP.NET
- PHP
- Language Translator

User support systems
- www.riskview.info
- www.africariskview.org
- User helpdesk Ticket System osTicket
- User registration and management
- Help System MediaWiki
- License management

Servers and Databases
- MySQL
- Storage for Datasets, Country project settings, User information, License data

Task schedulers and background processing
- Data Fetchers
- Email Processing
- Database Backups
- Task Scheduler

Prerequisites for the Africa RiskView software

Operating systems
Africa RiskView is compatible with modern Microsoft Windows Operating Systems, including Windows 7, Windows 8.x and Windows 10. Minimum requirements are 2 GB RAM (internal memory) and a display resolution of at least 1024x768. The software can also be run on a Mac computer using "Parallels desktop & Win7 and Mac OS X 10 and higher".

Disk space
Several input datasets are stored on user's computer for the operation of the software. It is recommended to have at least 10 GB of available hard disk space.

Internet connection
A reliable internet connection is required for downloading software updates and datasets needed for the calculating the drought index. Reference country project information is also downloaded from ARC servers when there are updates. Connection to the servers is also needed for license verification during installation.

User Support
Users can access help systems via the desktop applications. Helpdesk support can be accessed by writing to support@riskview.info.

Software Development Technologies

The desktop applications are developed using Delphi, an object-oriented derivative of the Pascal programming language. The online application is developed using ASP.NET, an open-source server-side web application development framework designed to produce dynamic web pages.

The software is developed and maintained by ARC's in-house development team, in the Research and Development department.