

DATA TOOLS METHODS for

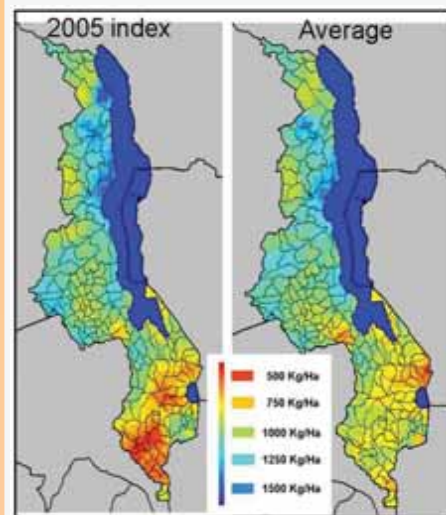
climate impact assessment in agriculture and planning of climate change adaptation practices

Weather based indices for crop insurance

FAO tools help to derive an effective weather-based crop yield index for crop insurance. The approach proposes to compute a crop specific water balance to derive value-added crop-weather variables that can be combined with other data (e.g. remote sensing inputs, farm inputs such as fertilizer use). The methodology uses gridded information that is not too sensitive to individual missing stations, provided sufficient data points are available.

The methodology has demonstrated the possibility of producing weather based maize yield index for crop insurance for any point in Malawi every ten days starting from planting time. Real-time maize yield indices covering the whole country can be objectively produced. The maize yield index satisfies all the desirable criteria for maize crop insurance in Malawi. First estimates of Index can be provided at planting time and updated in real time throughout the season. More specific products for crop insurance can be prepared using criteria provided by insurance experts, and the methodology can easily be extended to other crops.

Further information available at:
http://www.fao.org/nr/climpag/aw_2_en.asp



Maps showing local maize yield index (kg/ha) and average index



For further information:

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FAO Climate Offer

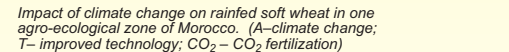


The "CM Box" (Crop Monitoring Box) is a toolbox for agrometeorological crop monitoring and forecasting. It is an automated software suite with a "visual menu" that offers easy access to database that holds all the data needed to analyse the impact of weather on crops. The tool is useful for risk analysis, monitoring and forecasting crop production, which is an essential input to food security planning. The tool can compare maps of current yield expectations with historical average conditions.

[illegible]

FAO is developing an integrated impact assessment methodology (toolbox) to assess climate change impacts on agriculture. The methodology comprises four main components: a downscaling method for processing Global Climate Model (GCM) output data, a hydrological model for irrigation water resources estimation, a crop growth model to estimate crop yields and a Computable General Equilibrium (CGE) Model to simulate the effect of changing agricultural yields on national economies. The integrated toolbox for country wide studies will be available together with user manual, tutorials and sample data after real-life tests in two countries in Africa in 2011.

Year	A	A+T	A+T+CO2
1980	1.9	1.9	1.9
2000	1.9	2.0	2.0
2020	1.8	2.4	2.5
2040	1.5	2.6	2.7
2060	1.2	2.6	2.7
2080	0.9	2.5	2.6
2100	0.8	2.5	2.6



The Local Climate Estimate Tool (New_locClim), a software program and database, provides estimates of average climatic conditions at any location on earth based on the FAOCLIM database. The programme can create climatic maps, extract data in various formats from the database for further processing and can display graphs showing the annual cycle of monthly climate and the crop calendar. The tool provides growing season characteristics based on a comparison of rainfall and potential evapotranspiration and estimates of monthly, 10-day and daily values of common climate variables.

New_LocClim
Local Climate
Estimator

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EXPERIMENTAL AND STATISTICAL METHODS WORKING PAPER

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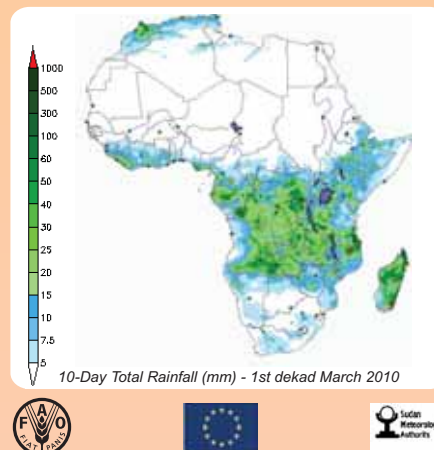
UNEP

Farm Adaptive Dynamic Optimization (FADO) refers to a combination of methodology that helps to identify, analyze and prioritize the climate related vulnerabilities and risks and optimize the adaptation practices to effectively respond to climate variability and change. The approach combines the historical climate data and modern data transmission and information sources for real-time analysis of impacts. It provides opportunities to generate viable options for farm decision making to manage the risks and opportunities at the farm level.

The diagram illustrates the data flow in a Farm Adaptive Dynamic Optimisation (FADO) system. It features a central 'Crop Simulation model' box, which is a purple rectangle containing two interlocking gears. To the left of this model is a green box labeled 'Village with weather station' containing a small image of a village. To the right of the model is a white box labeled 'Agrometeorological or extension Services' with four arrows pointing towards the 'Crop Simulation model'. Below the model is a white box labeled 'On-farm management options' with an arrow pointing towards it. Two red curved arrows form a cycle: one arrow points from the 'Village with weather station' to the 'Crop Simulation model' and is labeled 'real time weather and phenology'; the other arrow points from the 'Crop Simulation model' back to the 'Village with weather station' and is labeled 'farm management advice'.

FAO Rain Fall Estimate (FAO-RFE) for Africa is a new independent method to estimate the rainfall amount, particularly, for certain regions where the coverage of the weather stations is scarce. FAO RFE is based on the Meteosat Second Generation IR channel combined with data coming from ECMWF global forecast model and EUMETSAT MPE.

For additional details visit:
<http://geonetwork3.fao.org/climpag/FAO-RFE.php>



Climpag (climate impact on agriculture) is a web portal bringing together the various aspects and interactions between weather, climate and agriculture in the context of food security. Climpag contains data, maps, methodologies and tools for better understanding and analysis of the effect of the variability of weather and climate on agriculture. The web portal covers six major thematic areas: advice and warnings, climate change, climate indicators, data and maps, hotspots and natural disasters. User friendly drop-down menu provides access to all publications, tools and methods relevant to all the thematic areas. The portal can be accessed at: <http://www.fao.org/nr/climpag/>

