

Forecasting and Interventions

Cycles
2 versions, 2 configs
Category: Agriculture
Type: Theory Guided

MODFLOW
1 version, 1 config
Category: Hydrology
Type: Theory Guided

Penn State Integrated Hydrology Model (PIHM)
2 versions, 2 configs
Category: Hydrology
Type: Theory Guided

DSSAT
1 version, 1 config
Category: Agriculture
Type: Theory Guided

Files:

Input files

Name	Description	Value on setup	Format
<code>cycles_weather</code>	Cycles weather file	-	weather
<code>cycles_soil</code>	Cycles soil file	<code>pongo.soil</code>	soil
<code>cycles_crops</code>	Cycles crops file	<code>crops.crop</code>	crop

Parameters:

Name	Description	Value on setup
<code>crop_name</code>	Name of the crop to run the simulation for	Maize (default)
<code>start_planting_day</code>	Day of the year when the planting started The range is from 1 to 365	100 (default)
<code>end_planting</code>		
<code>fertilizer</code>		
<code>weed_fraction</code>		

Variables:

`cycles_weather` Cycles weather file

Label	Long Name	Description	Standard Name
RHn	relative humidity minimum	relative humidity minimum	atmosphere_air_water-vapor__min_of_relative_humid
Solar	solar radiation of the day	Shortwave incoming radiation on	land_surface-horizontal_radiation-incoming-shortwave

Processes and Configurations:

Selected configuration: Cycles configuration (v0.9.4) exposing weed fraction and fertilizer rate

Cycles configuration (version 0.9.4) exposing additional parameters such as weeds fraction and fertilizer rate
Authors: Rafael Silva

- Time interval: 1 day
- Grid details:
 - Type: PointBasedGrid
 - Dimensions: 0D
 - Spatial resolution: Point
- Processes: Respiration, Nitrogen mineralization and immobilization, Biomass growth, Humification, Transpiration, Nitrogen uptake, Precipitation, Solar radiation, Management, Nitrogen transport
- Download: [cycles-0.9.4-alpha.zip?raw=true](#)

Selected configuration setup: Cycles calibrated model (v0.9.4) for the Pongo region with planting dates. Weather file can be chosen

Cycles calibrated model (v0.9.4) for the Pongo region. Planting dates can be selected as parameter values and the weather file can be chosen as an input
Authors: Rafael Silva

- Region: Pongo Basin (South Sudan)
- Time interval: 1 day

mint model integration

1 Identify variables of interest

2 Identify variables of interest

3 Compare models

4 Set up and run model

5 Adjust model to explore interventions, identify problem areas

6 Prepare modeling products for analyst

Forecasting: Investigate food security in South Sudan for August 2022

What flooding is expected in the Pongo Basin for the 2022 lean season?

Model: PHM v2.2 - Pongo Basin Calibration

Adjustment to precipitation: 0.10, +

Adjustment to temperature: 0.10, +

Production (kg/ha)

Land Area (ha)

Legend: sorghum, groundnuts, sesame, maize

Subsidies for sorghum fertilizer will decrease sesame production

If sorghum prices fall, sesame and maize production increase

If sesame prices fall, groundnuts production will increase