JavaStics and Stics changes

JavaStics-1.41 / Stics 9.0

Interface

- **Improvements**
  - Access to param_newform.xml has been restored
  - New simulation unit examples for testing snow module use, and new plants (timothy, rice, turmeric)

Parameterization

- Values of parameters associated to unused options have been replaced with -999 values (parameters which have not been calibrated)
- Plant parameters : some of them have been moved:
  - **tgmin** and **nbfeuilplant** : outside of options in « emergence and starting » formalism
  - **tcmin** and **tcmax** : outside of options in « leaves » formalism
  - **vitircarb** and **irmax** : outside of options in « yield formation » formalism
  - **bdilmax** : outside of options in « nitrogen » formalism
- New usm example for the Timothy plant

Model

- **Documentation**
  - Formalisms : snow, mineralization
  - Model performances evaluations

- **Bugs fix**
  - Some variables initializations and tests
  - Conditional tests syntax according to variables types, types conversion for avoiding warnings, unused variables removed
  - Test for chaining an usm over years

- **Improvements**
  - Parameters consistency checks, bounds checks, values checks for activated options (-999 values)
  - New output variables (snow, N, …, see JavaStics documentation
  - Specific module for projects simulations management
  - Formalisms / parameters
    - New humus mineralization formalism
    - Mixing/distribution of water and nitrogen soil content after a soil tillage

        - New module for producing snow cover: recalculation of minimum and maximum temperature, and precipitations
    - New modules for files management and system operations
    - Errors management (new specific log file)
    - Calculations: avoiding some loops
    - New plant files (timothy, rice, turmeric)

JavaStics-1.40 / Stics 8.50

Interface

- **Bugs fix**
    - Day of year checks for annual or 2 years' crops
    - Parameters optimization process: open variables list, usms selection (over 2)
- **Improvements**
    - Dialog box for exiting confirmation
    - Example scripts for using JavaStics command line
    - New executables for Mac OS platform: Stics model and utilities
    - Updates on OS detection for automatic executables selection (model, utilities)
    - Changing command line interface (from Stics.exe to JavaSticsCmd.exe)
    - Parameters optimization output file changes: lower criterion value and corresponding parameter values, usms list used in the processing

Parameterization

- Updated sunflower and sugarbeet plant files
- Plant parameters files renamed : to distinguish prototypes files, cover crop files and inter crop files

Model

- **Bugs fix**
    - Calculation and controls of output dates for profiles
    - Grass:
        - Cutting management
        - Delayed cutting day calculation (when passing years)
        - Variables initialization over years
        - Seeded grass: restart stage for next year
        - Initialization in successive simulations case
    - Senescence calculation and effect
    - Automatic irrigations calculation based on upvt
    - Variables

        - Report file format
        - Plant density calculation for intercropping
        - Plastic mulch covering use
        - Water and nitrogen stress management

- **Improvements**
    - Parameters consistency checks
    - New output variables
    - Profile file content update
    - Formalisms / parameters
        - Nitrification and denitrification
        - Grass: roots death, cutting decision criterion,
        - Multiple thinning management
        - Multiple fertilizer types management

JavaStics-1.31 / Stics 8.41

Interface

- Climatic variables: bounds set to float, fix for vapor pressure check rule and maximum bound value
- Documentation: default value for CO2

Parameterization

- Parameters documentation fixes (names,definitions, bounds, codes)

Model

- **Bugs fix**
    - Variables names in var.mod file
    - Increasing message variable dimensions
- **Improvements**
    - Extension of optimizable parameters list

JavaStics-1.30 / Stics 8.40

Interface

- command line: adaptations to linux OS
- Stics files management

- climatic dialog for files formatting
- keeping selected input file name for creating new one, or copying it
- sorting parameter files list
- dates bounds for validation in usm run dialog
- confirm popup when exiting Javastics

Parameterization

- plants : vine et durumwheat plant files (special because one file by genotype) are renamed and cleaned
- parameters documentation fixes (names,definitions, bounds, codes)
- Param_new_form: add of parameters for coupling with pathogen models (not actived)

Model

- **Bugs fix**
  - last year simulation for yearly climatic sequence
  - variable names (AZamm(2), Qles), initializations (msrac, irazo,ircarb, Qnplante), type (CO2, real), calculation (qmulch)
  - getting residues of previous crop: test for artificial mulch activation, for all crop management systems
  - growth restarting calculation after harvest
  - dates conversion in report file
  - balance calculations for inter-crops:
    - 2 years crops: stages dates calculations for sowing in bissextile year
    - associated crops: mineralisation calculation, taking into account precipitations before sowing
    - abscission variables indexation
    - irrigations sums
    - leaves exposition: relative area use for previous day dry matter calculation, and in case of dominance inversion

- **Minor fixes**
  - balance informations: intermediate temperature sums, stages
  - tests: cultivars numbers,
  - warnings: profmes==profsol
  - exiting: if incompatible values for codebeso and codeetp
  - calculations: setting ndebdes with nrec value rather than nrecbutoir one when the given stage not reached, masec for strawberries after harvest
  - removing non ascii characters

- **Improvements**
  - model execution: exiting code when errors (no more stop), message at the end of successfull execution

- files path management (Record platform compatibility)
- variables
    - co2(n), fco2, fco2s, rendementsec
    - Macsur project
        - cumulatives variables from sowing date to maturity (*_from_plt)
        - water reserves available for plants or for a given depth (SoilAvW, SoilWatM)
        - for optionnal specific outputs in report file
    - Agmip project: stages dates to year days

- model version integration when compiling, getting it from command line
- variables: keeping matuber after harvest (beet), restoring lessiv
- messages: for tracking parameters and codes values (history file), removing useless and french messages
- report file: added location,
- balance file: Sum of Maximal ET (eos+eop) instead of sum of PET, changes for yield formatting
- soil profile file: increasing days numbers

JavaStics-1.21 / Stics 8.31

Interface

- command line: files generation, rotations run
- informations: development stages names in initialization, tables headers content and size
- usm sorting removed for selection in rotations case

Parameterization

- general parameters: updates about some parameters values, parameters names
- plant files parameters updates (rapeseed,ryegrass, mustard)
- parameters documentation fixes (definitions, bounds, codes)
- variables documentation fixes (definitions)

Model

- **Bugs fix**
    - vernalisation management
    - matuber value calculation
    - roots density distribution over profiles (nouvrac)
    - option management for shelter climatic conditions
    - climatic series management with uncomplete years
    - management of residues content (water, nitrogen)

    - senescence process for grass
    - management of PET calculation method and control

- **Improvements**
    - initial development stage in report file
    - new variables in profile (humirac_z et efNrac_z, up to 60 possible dates)
    - new daily output variables (rlj, efnrac_mean, humirac_mean,efda, efNrac)
    - added day in year number to profile file.
    - PET calculating method name in balance file