These tables are the in-house checklists used for the UW Model Repository at www.physiome.org

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | STANDARDS.4. VERIFICATION: | Auth | 2nd | Note |
| Group 1: Conservation, Balances | | x |  |  |
|  | Unitary Balance: (units on all variables and parameters |  | xy |  |
|  | Mass balance: (list constituents whose conservation is checked) |  |  | xyz |
|  | Other balances: Charge, Osmotic , Thermodynamics. |  |  |  |
|  |  |  |  |  |
| Group 2.Verification Steps. Checking Math and Numerics of Model | |  |  |  |
|  | All terms defined |  |  |  |
|  | Numerical Solutions check analytic. Why Methods chosen. In notes. |  |  |  |
|  | Analytic solutions built into code? |  |  |  |
|  | Equation formats in similar styles, aligned for easy checking |  |  |  |
|  | Dependence on time step defined for particular parameter values |  |  |  |
|  | Dependence on space step defined for particular parameter values |  |  |  |
|  | Optimizer and loop parameters provided |  |  |  |
|  | Different solvers gives same results for ODEs |  |  |  |
|  | Different solvers gives same results for PDEs |  |  |  |
|  | Implicit eqns solved by iteration? Calculation done how? |  |  |  |
|  | Commentary on checks or missing checks |  |  |  |
|  | Solution times chosen; delta t chosen; comments |  |  |  |
|  | List variables computed in the MML code that are serving as checks |  |  |  |
| Group 3: Verification in Data analysis | |  |  |  |
|  | Data available, described and adequate as test |  |  |  |
|  | Data units matched by model |  |  |  |
|  | Multiple data sets available |  |  |  |
|  | Behavioral analysis: Can cover a wide range of situations? |  |  |  |
|  | Sensitivity analysis defined for conditions that fit data |  |  |  |
| Group 4. Validation methods: See STANDARDS-VALID for detail | |  |  |  |
|  | 1. Justify initial and boundary conditions in accord with physiology |  |  |  |
|  | 2. List Data provided and fitted by model, and sources. |  |  |  |
|  | 3. Show fits of data in Figures, and optimization results |  |  |  |
|  | 4. Notes defining contents of each situation, figure or par set |  |  |  |
|  | 5. Parameters estimated and evaluated against literature or other |  |  |  |
|  |  |  |  |  |
| Group 5. Uncertainty Quantification: See STANDARDS-UQ for detail | |  |  |  |
|  | 1. Parameters and Variables chosen |  |  |  |
|  | 2. Define Measures of uncertainty |  |  |  |
|  | 3. Plots or contour maps of projected results |  |  |  |
|  | 4. Methods verified for full range of Monte Carlo ranges used |  |  |  |
| Group 6: Scientific Publication: See STANDARDS-PUB for detail | |  |  |  |
|  | 1. Summary of verification tests in publication? |  |  |  |
|  | 2. Any failures in verification |  |  |  |
|  | 3. Website for public dissemination of verification methods or tests |  |  |  |

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