RASCAL Change Log: Version v4.3.2

July 2016

- **Reactor Events (Source Term to Dose Model, STDose):**

  - Resolved an issue with the source term models where noble gases in coolant were not being released.

- **UF6 Releases (Source Term to Dose Model, STDose):**

  - Resolved an issue where the conversion of HF exposure to parts per million (ppm) for the lung pathway was incorrect. With the correction, the reported HF Lung (ppm) values increase by a factor of approximately 1.5 over the RASCAL 4.3.1 values.

  - Resolved an issue where the deposition velocity used with HF gas was incorrect. The error was lessening the dry deposition velocity of the HF gas approximately by a factor of 2 to 5, depending on wind speed and stability class. With the correction, air concentrations will go down and ground deposition will go up for HF gas.

  - Resolved an issue with the calculation of UO2F2 exposure and deposition. With the correction, the UO2F2 exposure/deposition values increase by about a factor of 1.19. This change is not significant to the user as the current user interface does not report the UO2F2 values.

  - Resolved an issue with HF concentrations not being correctly calculated if the release duration did not fall on an exact 15-minute interval. The result of the error could be oscillations in the HF concentrations as release durations increased.

- **Meteorological Data Handling:**

  - Resolved an issue with the module that processes weather observations and forecasts into gridded fields for use by the ATD models. The module was generating negative mixing heights if the release point was in the southern hemisphere. This was causing the code to default to unrealistically low estimates of the mixing heights and thus generating dose estimates that were too high.

  - Resolved an issue with MetFetch not being able to retrieve observation from the NWS. Users were receiving time out or access forbidden error messages. The problem was traced to changes in the security settings of new servers at the NWS. The MetFetch program was changed to use a different method for downloading the observation data.

  - Resolved an issue with MetFetch when handling bad forecast data from the NWS. The NWS data stream was on some occasions sending partial or incomplete forecast data which was not being detected and handled by MetFetch.

  - Resolved an issue with MetFetch buttons not being visible at some screen settings.

- Resolved an issue with MetFetch where the automatic download process could not be scheduled with the Windows Task Scheduler if RASCAL was installed to a folder whose name contained spaces.

- Added an option to the MetFetch user interface to allow the program to access an alternate source of forecast data. The standard resolution option uses the operational service (3-hour temporal and 5 km spatial resolution) while the high resolution option uses the experimental service (1-hour temporal and 2.5 km spatial).

- Updated the MetFetch user interface to move the station database field from the main tab to the settings tab. That field is rarely changed and it makes more sense as a setting.

- Resolved an issue with the Meteorological Data Processor handling of the daylight savings time correction when retrieving observation or forecast weather data downloaded with MetFetch.

- **Updates to RASCAL Facility Database and Site Data:**

  - Updated the RASCAL facility database to:
    - Add the two South African sites (Koeberg NPP and SAFARI-1 research reactor)
    - Correct the Watts Bar – Unit 2 rated reactor power to 3411 MWt.

  - Created site folders for the two South African sites (Koeberg and SAFARI-1) and populated with needed topography, surface roughness, and map background files.

- **Other Fixes and Updates:**

  - Updated the support section of the help files to direct users to the RAMP website when needing assistance.

  - Updated the MetFetch help to better match the changes to the user interface.