RAMPED UP

INSIDE THIS ISSUE

U.S. Nuclear Regulatory Commission

Rockville, MD

U.S. NRC RAMP website:
https://ramp.nrc-gateway.gov/

2019 Fall RAMP Users Meeting at U.S. NRC Headquarters
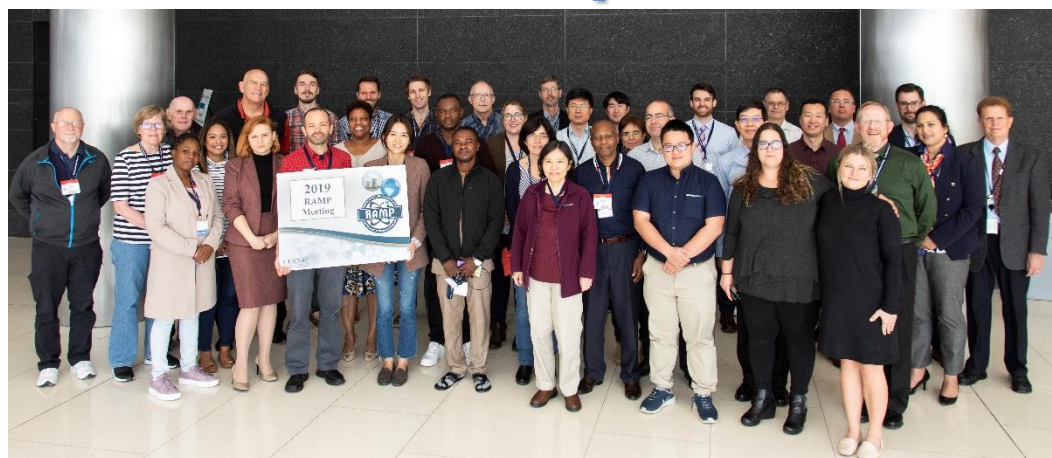
The fourth domestic Radiation Protection Computer Code Analysis and Maintenance Program (RAMP) Users Group Meeting was hosted by the NRC on October 28 – November 1, 2019, at NRC Headquarters in Rockville, Maryland.

The NRC welcomed the largest number of RAMP meeting attendees thus far with over 150 registered participants, instructors, and support staff. Ten international regulators were represented with international users from Australia, Canada, Ghana, South Africa, South Korea, Spain, United Arab Emirates, Israel, Ghana, and Taiwan. Domestic users comprised multiple U.S. Federal Government and State agencies, national laboratories, universities, and the nuclear industry.

The meeting featured training sessions and discussions for RASCAL, NRCDose, VARSKIN, RADTRAD, IMBA, RESRAD, RADTRAN, GENII, and the Atmospheric Codes. The hands-on training offered users a way to test the codes and their ability to use them while receiving direct feedback from the code developers. Attendees participated in open discussions with developers, provided suggestions for code improvements, and learned more about code upgrades and future releases. Users were able to ask more in-depth questions pertaining to their needs in the discussions.

RAMP Highlights

RAMP Team Highlight

Caitlin Condon, Ph.D., is a Health Physicist in the Environmental Assessment and Engineering Group at Pacific Northwest National Laboratory (PNNL) in Richland, WA. Dr. Condon joined PNNL in August of 2019 after completing her Ph.D. in Health Physics at Oregon State University. She also holds a B.S. degree is in Environmental Health from Colorado State University.

Dr. Condon's research and background focuses on environmental transport of radiological contaminants in the environment and the associated consequences to humans and the environment. As a member of the RAMP Team, Dr. Condon supports the maintenance and development of the RAMP codes and serves as a trainer for various RAMP codes during users group meetings, such as GENII and RADTRAN.

Pacific Northwest
NATIONAL LABORATORY

New Codes in RAMP: TurboFRMAC & RESRAD

Two new codes have officially joined RAMP!

RESRAD is a family of codes that analyze potential human and biota radiation exposures from the environmental contamination of RESidual RADioactive materials. The codes use pathway analysis to evaluate radiation exposure and associated risks, and to derive cleanup criteria or authorized limits for radionuclide concentrations in the contaminated source medium.

Turbo FRMAC performs complex calculations to quickly evaluate radiological hazards during an emergency response by assessing impacts to the public, workers, and the food supply. Turbo FRMAC can be used to evaluate the hazard from a wide variety of radiological incidents, such as a nuclear power plant emergency. Turbo FRMAC calculations are based on methods established by the Federal Radiological Monitoring and Assessment Center (FRMAC).

Keep a look out on the RAMP website for instructions on how to obtain the codes.

International Partners

The RAMP Team would like to give a big welcome to our new international partner: **Singapore!** We look forward to working with your regulatory agency!

CODE HIGHLIGHTS

RASCAL 5.0

RASCAL 5.0 continues to be under development. Improvements to the code include:

- Updated source term modeling to make use of newer science.
- Better integration of tools that were separate in RASCAL 4 including weather data downloading and multi-unit support.
- DCFPAK 2015 included as source for all dose coefficients.
- Dynamic map background for displaying results including pan and zoom as well as several choices for the map data source.
- User interface upgrades to improve usability with a more modern look and feel but retaining the basic workflow structure of RASCAL 4.
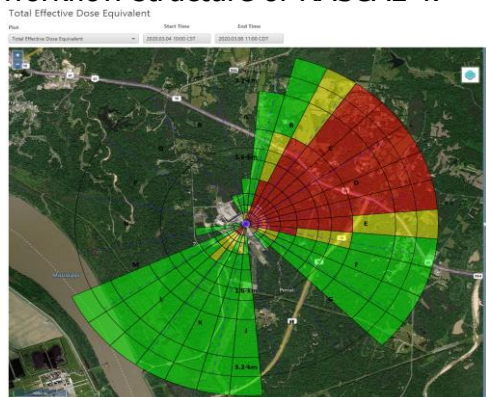

RASCAL 5 Preview Release coming soon

ARCON 2.0

The Atmospheric Relative CONcentrations in Building Wakes (ARCON) is a computer code used to calculate atmospheric relative concentrations (X/Q) in support of control room habitability assessments. Though ARCON is a traditional Gaussian plume model, the diffusion coefficients are modified based on experimental data to account for enhanced turbulence from low-wind-speed meander and building wake effects, which can greatly increase diffusion, especially in the near-field.

During the past two years, the NRC and Pacific Northwest National Laboratory (PNNL), have been updating ARCON to include the finalized peer-reviewed diffusion coefficients (Ramsdell and Fosmire, 1998) as well as a user interface. The interface uses a simple "folder" structure to organize user inputs. A preview release—ARCON 2—has been submitted to the NRC for review; the new software is expected to be released this fall.
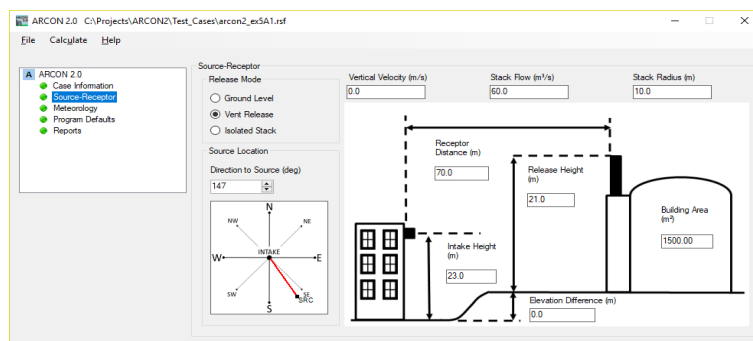
ARCON 2 Source-Receptor User Input Form

Release of MILDOS 4.2

MILDOS 4.2 is available for download on the RAMP website. Updates for MILDOS 2.0 include:

- A population wheel generator based on the 2016 U.S. can generate an 80-km population distribution for any location within the United States.
- Users can specify custom output graphs in a variety of formats (column, scatter, radar, and grid).
- Organ dose estimates from Rn-222 exposure have been removed (zeroed out) in the calculations.
- A calculation error was corrected. User files with area sources listed in sequence that had different associated particle distribution sets may have resulted in higher estimated doses for the second source.
- A number of minor user interface issues were resolved.

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WE'D LOVE TO HEAR FROM YOU!

The RAMP Team welcomes your thoughts and feedback on any code features and enhancements for the RAMP codes and the RAMP website. Please send your feedback to RAMP@nrc.gov.

Feedback

IN THE NEXT ISSUE OF RAMPED UP...

- 2020 Summer Webinar Highlight
- Who's new in RAMP?
- Code Updates and Highlights
- More Details on the Fall 2020 Users Group Meeting
- ...and More!!

U.S.NRC — UNITED STATES NUCLEAR REGULATORY COMMISSION — *Protecting People and the Environment*

RAMP

SSTC NRS | STATE ENTERPRISE STATE SCIENTIFIC AND TECHNICAL CENTER FOR NUCLEAR AND RADIATION SAFETY

Pacific Northwest NATIONAL LABORATORY

RAMP Summer 2020 International Webinar

Limited to the first 100 registrants per each webinar

JUNE 25, 2020

7:00 a.m. U.S. Eastern Standard Time
1:00 p.m. U.S. Eastern Standard Time
Via GoToMeeting

Email with link will be sent after online registration is complete

AGENDA

5 mins.	Introduction and Welcome (U.S. NRC)
10 mins.	What's Been Happening in RAMP? (U.S. NRC RAMP Program Manager)

Technical Symposium: Modeling Resuspension of Radionuclides

15 mins.	Role of SSTC NRS in response to the wildfires in Chernobyl Exclusion Zone (SSTC NRS)
20 mins.	Modeling Resuspension during Forest Fires Using GENII (PNNL)
10 mins.	Member feedback and Q&A

SAVE THE DATE FOR THE REMOTE
FALL RAMP USERS MEETING – OCTOBER 2020