Used Fuel Disposition Campaign

Waste Package and Waste Form Degradation and Implementation in PFLOTRAN

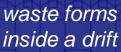
Jennifer M. Frederick

Glenn E. Hammond and Paul Mariner Sandia National Laboratories

2016 UFDC Annual Working Group Meeting GDSA Session, June 8, 2016 Las Vegas, NV

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waste forms below drift floor

X

PFLOTRAN Simulation: Emily Stein, SNL

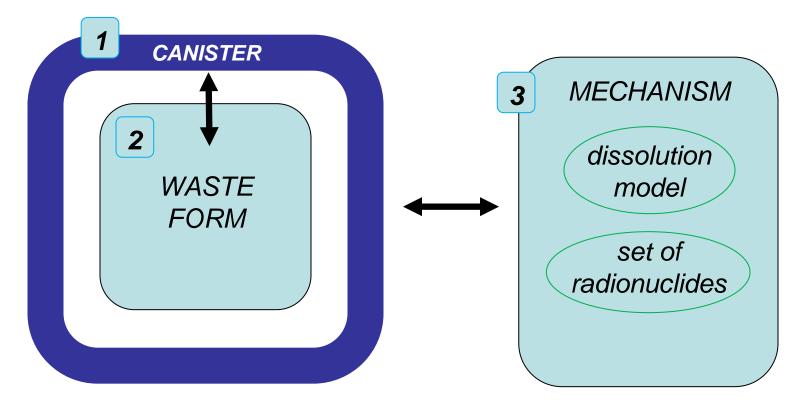
Z

Waste Form Process Model Development Team:

- Jennifer Frederick (SNL)
- Glenn Hammond (SNL)
- Paul Mariner (SNL)

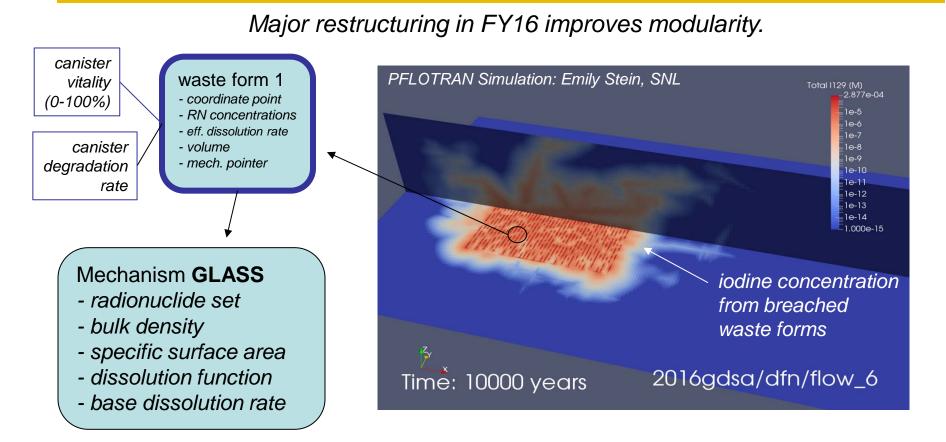


Consists of 3 Main Components:

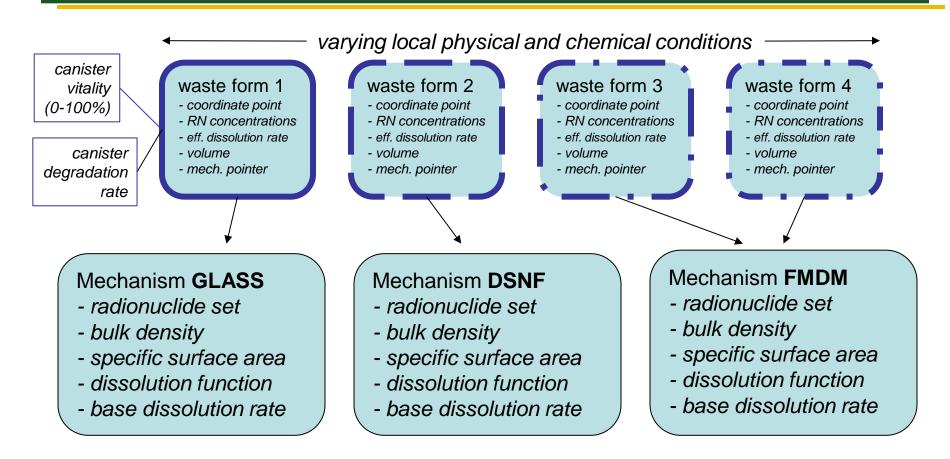


"waste form object" "fruit"

"waste form type" "banana, apple, orange, etc."

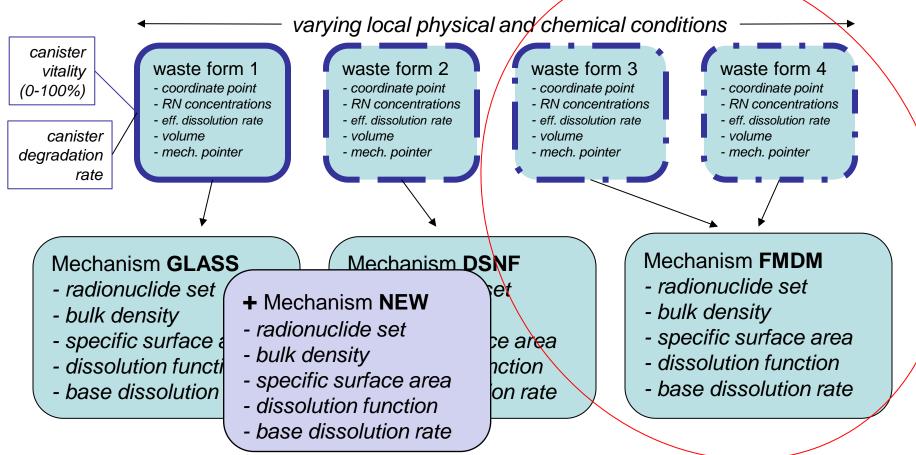


- Each canister & waste form is independent and can fetch the local conditions
- Canister breach times and dissolution rates now vary
- Multiple waste form types in a single simulation (mechanism pointer)



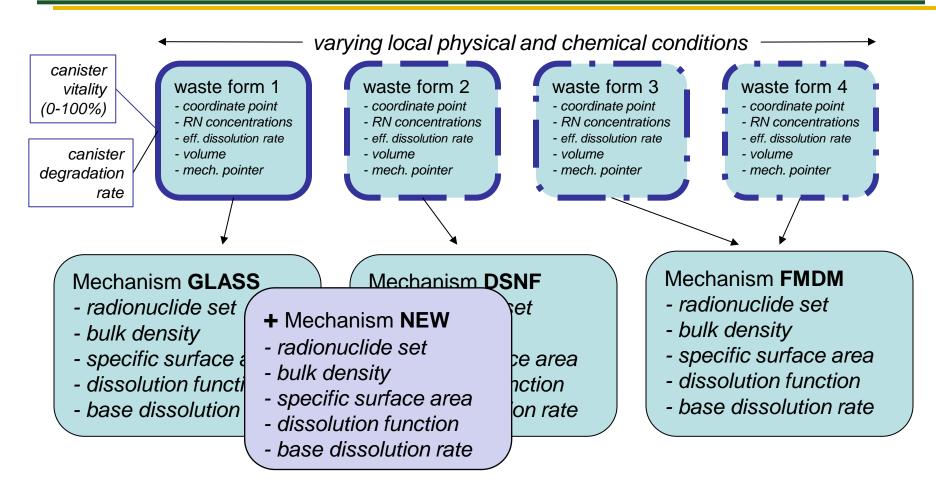
Benefits of modular design:

• Modularity increases the numerical efficiency (lots of waste forms, few mechanisms)



Benefits of modular design:

- Modularity increases the numerical efficiency (lots of waste forms, few mechanisms)
- New functionality can be easily integrated (without messing with existing infrastructure)



We invite you to collaborate on this process model We can help you implement the new waste form you envision