

# UFS Graduate Student Test Questionnaire: UFS Weather Model CCN Experiment

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The test page will point you to the documentation and code that you need to get started.

The test should take less than 3 hours to complete. If you can't complete the test in the specified timeframe, that's okay! Just let us know where you got stuck. If you have technical questions, please use the weather model forum that's linked on the wiki pages - look for the green button.

Once you finish the test, please fill out this questionnaire with your evaluation.

There are a few prerequisites for this activity and evaluation. If you don't have them, please write [ufsfocusgroupcontact@gmail.com](mailto:ufsfocusgroupcontact@gmail.com). It may be that we can help you satisfy the prerequisites, or that a different Focus Group activity is a better fit.

## Prerequisites:

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- An account on Cheyenne, Stampede2, or Hera will help, but you can also try the test on a local linux or macos platform.
- Experience or coursework related to basic computational Earth system modeling.
- Some knowledge of running code on high performance computing platforms: submitting jobs through batch systems, working on a command shell, and looking at results using a visualization package (e.g. NCL).
- You don't have to be a graduate student - we need input from other types of collaborators as well!

## Information about respondent

Please tell us a little about yourself.

Which category below best describes you?

- Graduate student
- Post-doc
- Scientist - junior
- Scientist - senior
- Management
- Field officer
- Curious citizen
- Software developer - junior
- Software developer - senior
- Media/communication
- Other: .....

If you are a graduate student, what is your major area of study?

Aerosol, data assimilation .....

If you are a graduate student, what year are you in or what level of graduate work? (MS or Ph. D)

The 3rd year of Ph. D .....

Are you employed?

Yes

No

Other: \_\_\_\_\_

If yes, where are you employed?

A government agency

Private enterprise

An educational organization

Other: \_\_\_\_\_

Do you use numerical models as part of your educational program or job?

Yes

No

Not sure/Not applicable

Have you run any of the following environmental models? Please check all that apply.

- Weather Research and Forecasting (WRF) Model
- Community Earth System Model (CESM)
- Navy global or regional models (e.g. COAMPS, NavGEM)
- Goddard Earth Observing System (GEOS) Model
- Energy Exascale Earth System Model (E3SM)
- Other: \_\_\_\_\_

Are you currently involved in the UFS project?

- Yes
- No
- Not sure/Not applicable

Have you participated in a UFS graduate student test before?

- Yes
- No
- Not sure/Not applicable

Which computer will you use to perform this test?

- Cheyenne
- Stampede2
- Hera
- Other: \_\_\_\_\_

## 2. Feedback on the test

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I needed additional documentation in order to get started.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
I found it easy to understand the configuration being modeled.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I found the code easy to get.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I was able to run the code without any trouble.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
I found the configuration easy to modify.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### 3. Free response questions

Did the documentation provide sufficient information for you to understand the nature of the code you were asked to run and how it will be used? If not, what was missing?

.....

Were you able to complete the test in 3 hours? If not, how long did it take?

Yes.  
.....

What could be done to improve the user experience getting, running and changing this code?

.....

Could you use this code in your work? If so, how?

Yes. We planned to replace the FV3 version to development model with 2-moment microphysics scheme and ingest the aerosol field to modify the radiation and microphysics through the interaction of aerosol.  
.....

What are the highest priority additions you would make to the code to make it more useful to you?

Post-process to generate the file on pressure levels.  
.....

Is there anything else you would like us to know?

I encountered a problem when I directly copied and paste the following command, export CCPP\_SUITES='FV3\_GFS\_v15p2,FV3\_GFS\_v16beta', in the page of Compiling the Code without an Application. I have to manually modify the quotation mark again to avoid the parsing error in python. I used the terminal application in Mac OS.

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If you are a graduate student, what is your major area of study?

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If you are a graduate student, what year are you in or what level of graduate work? (MS or Ph. D)

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Are you employed?

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- Other: \_\_\_\_\_

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Do you use numerical models as part of your educational program or job?

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Have you run any of the following environmental models? Please check all that apply.

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Are you currently involved in the UFS project?

- Yes
- No
- Not sure/Not applicable

Have you participated in a UFS graduate student test before?

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Which computer will you use to perform this test?

- Cheyenne
- Stampede2
- Hera
- Other: \_\_\_\_\_

## 2. Feedback on the test

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### 3. Free response questions

Did the documentation provide sufficient information for you to understand the nature of the code you were asked to run and how it will be used? If not, what was missing?

The documentation was very simple to follow. This was an especially helpful exercise for me because when running WRF in the past, I've always had others set up the libraries and dependencies.

Were you able to complete the test in 3 hours? If not, how long did it take?

Yes

What could be done to improve the user experience getting, running and changing this code?

In the first test, I did enjoy how you asked us to go into a physics subroutine to make changes, whereas here its simpler by just modifying the namelist.

Could you use this code in your work? If so, how?

Yes. I intend to use the code to examine the aerosol impacts on tropical waves and tropical cyclones. I look forward to adjusting the code to answer my research-related questions.

What are the highest priority additions you would make to the code to make it more useful to you?

An easily accessible way to run the model with a new grid and initial conditions. The equivalent of a WPS for WRF. Does that currently exist?

Is there anything else you would like us to know?

Overall, i greatly look forward to working with the UFS weather model.

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If you are a graduate student, what is your major area of study?

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If you are a graduate student, what year are you in or what level of graduate work? (MS or Ph. D)

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Which computer will you use to perform this test?

- Cheyenne
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- Other: Linux RHEL 7 machine

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### 3. Free response questions

Did the documentation provide sufficient information for you to understand the nature of the code you were asked to run and how it will be used? If not, what was missing?

Yes, I can follow the documentation to run the test case. But I would appreciate if more detail description about the test case.

Were you able to complete the test in 3 hours? If not, how long did it take?

It took about 1 hour to install the model and run the test case. But before that, our IT personnel spend some times to build the external and NCEP libraries on our RHEL 7 machine.

What could be done to improve the user experience getting, running and changing this code?

I would like to see documents explaining the dynamic of the model, vertical/horizontal coordinates, and physics options. Also, step-by-step instructions on how to configure the domain and prepare input files for running a real case.

Could you use this code in your work? If so, how?

I would like to use this model to generate meteorological data to drive dispersion models.

What are the highest priority additions you would make to the code to make it more useful to you?

If possible, I would like to see the model can be applied to regional simulations with the nesting-domain feature. Regional meteorological data

Is there anything else you would like us to know?

The model was installed on our Linux RHEL 7 machine.

Our IT said he built the required libraries directly from RHEL 7 repositories instead of going through the trouble to get the source and build from scratch as the instruction mentioned (RHEL 8 machine).

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