Hello and Good Day to the Weather Research Forecasting Modeling Community, Atmospheric Science Community, & Meteorological Organization Leaders,

My name is Will Hatheway and I am a meteorologist in Texas, USA. I apologize if you see this email multiple times as I am sending it around the world to spread the news.

With the fatal failure of my old computer I had to redevelop the self-install scripts for the Weather Research & Forecasting (WRF) Model. As some of you may know there were about 16 different github repos for the old scripts. This was becoming very hard to manage and since I had to remake them all, I decided to put all the old repos into one master script.

Below is a summary of the new Master Script:

### **WRF Suite Master Script**

This is a BASH script that provides options to install the following Weather Research & Forecasting Model (WRF) packages in 64-bit systems:

* Weather Research & Forecasting Model (WRF)
* Weather Research & Forecasting Model Chemistry (WRF-CHEM)
* Weather Research & Forecasting Model Hydro Standalone (WRF-Hydro)
* Weather Research & Forecasting Model Hydro Coupled w/ WRF (WRF-Hydro Coupled)
* Hurricane Weather Research & Forecasting Model (HWRF)

### **System Requirements**

* 64-bit system
  + Darwin (MacOS)
  + Linux Debian Distro (Ubuntu, Mint, etc)
  + Windows Subsystem for Linux (Debian Distro, Ubuntu, Mint, etc)
  + CentOS-based systems not supported
* 350 Gigabyte (GB) of storage space

### **Libraries Installed (Latest libraries as of 01/01/2023)**

* Libraries are manually installed in sub-folders utilizing either Intel or GNU Compilers.
  + Libraries installed with GNU compilers
    - zlib (1.2.13)
    - MPICH (4.0.3)
    - libpng (1.6.39)
    - JasPer (1.900.1)
    - HDF5 (1.13.2)
    - PHDF5 (1.13.2)
    - Parallel-NetCDF (1.12.3)
    - NetCDF-C (4.9.0)
    - NetCDF-Fortran (4.6.0)
    - Miniconda
  + Libraries installed with Intel compilers
    - zlib (1.2.13)
    - libpng (1.6.39)
    - JasPer (1.900.1)
    - HDF5 (1.13.2)
    - PHDF5 (1.13.2)
    - Parallel-NetCDF (1.12.3)
    - NetCDF-C (4.9.0)
    - NetCDF-Fortran (4.6.0)
    - Miniconda
    - Intel-Basekit
    - Intel-HPCKIT
    - Intel-AIKIT

### **Software Packages**

* WRF
  + WRF v4.4.2
  + WPS v4.4
  + WRF PLUS v4.4.2
  + WRFDA 4DVAR v4.4.2
* WRF-CHEM
  + WRF Chem w/KPP 4.4.2
  + WPS 4.4
  + WRFDA Chem 3DVAR
* WRF-Hydro Standalone
  + WRF-Hydro v5.2
* WRF-Hydro Coupled
  + WRF-Hydro v5.2
  + WRF v4.4.2
  + WPS v4.4
* Hurricane WRF (HWRF)
  + HWRF Utilities v4.0a
  + POMTC v4.0a
  + NCEP Coupler v4.0a
  + GFDL Vortex Tracker v4.0a
  + GSI v4.0a
  + UPP v4.0a
  + WRF v4.3.3
  + WPS 4.3.1

### **Pre/Post Processing Packages Installed**

* WRF
  + Development Testbed Center (DTC) Model Evaluation Tools (MET) v11.0.0
  + Development Testbed Center (DTC) Enhanced Model Evaluation Tools (METplus) v5.0.0
  + Development Testbed Center (DTC) Unified Post Processor (UPP) v4.1
  + ARWPost v3
  + WRF-Python (Conda installed)
  + OpenGrADS
  + GrADS
  + NCAR Command Language (Conda installed)
* WRF-CHEM
  + Development Testbed Center (DTC) Model Evaluation Tools (MET) v11.0.0
  + Development Testbed Center (DTC) Enhanced Model Evaluation Tools (METplus) v5.0.0
  + Development Testbed Center (DTC) Unified Post Processor (UPP) v4.1
  + ARWPost v3
  + WRF-Python (Conda installed)
  + OpenGrADS
  + GrADS
  + NCAR Command Langauge (Conda installed)
  + Prep-Chem-SRC v1.5
  + WRF CHEM Tools
    - Mozbc
    - Megan Bio Emiss
    - Megan Bio Data
    - Wes Coldens
    - ANTHRO EMIS
    - EDGAR HTAP
    - EPA ANTHO EMIS
    - UBC
    - Aircraft
    - FINN
* WRF-Hydro Standalone
  + Development Testbed Center (DTC) Model Evaluation Tools (MET) v11.0.0
  + Development Testbed Center (DTC) Enhanced Model Evaluation Tools (METplus) v5.0.0
* WRF-Hydo Coupled
  + Development Testbed Center (DTC) Model Evaluation Tools (MET) v11.0.0
  + Development Testbed Center (DTC) Enhanced Model Evaluation Tools (METplus) v5.0.0
  + Development Testbed Center (DTC) Unified Post Processor (UPP) v4.1
  + ARWPost v3
  + WRF-Python (Conda installed)
  + OpenGrADS
  + GrADS
  + NCAR Command Langauge (Conda installed)
  + WRF-GIS-Preprocessor (Conda installed)
* HWRF
  + Development Testbed Center (DTC) Model Evaluation Tools (MET) v11.0.0
  + Development Testbed Center (DTC) Enhanced Model Evaluation Tools (METplus) v5.0.0
  + Development Testbed Center (DTC) Unified Post Processor (UPP) v4.1

\*\*\* Tested on Ubuntu 20.04.5 LTS, Ubuntu 22.04.1 LTS, MacOS Ventura, Windows Subsystem Linux Ubuntu\*\*\*

### **Special thanks to:**

* Youtube's meteoadriatic
* GitHub user jamal919
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* University of Tunis El Manar's Hosni S.
* GSL's Jordan S.
* NCAR's Mary B., Christine W., & Carl D.
* DTC's Julie P., Tara J., George M., & John H.
* UCAR's Katelyn F., Jim B., Jordan P., Kevin M.,

Below you will find links to the install scripts for Linux 64-bit, MacOS, and Windows Subsystem Linux.

WRF Master Script:

* https://github.com/HathewayWill/WRF-MASTER

DTC Model Evaluation Tools

* https://github.com/HathewayWill/DTC-MASTER

GEMPAK

* https://github.com/HathewayWill/GEMPAK\_Install

WRF CHEM Tools & Prep-Chem-SRC

* https://github.com/HathewayWill/WRFCHEM-TOOLS-MASTER

As you can see from above these new master scripts have added several additional features including:

* Parallelization
* Intel Compiler options
* New WRF Software
* New pre/post processing tools
* Support for MacOS
* Support for Windows Subsystem Linux

If you have downloaded and utilized my scripts before, please make sure to download this version and reinstall to get all the latest tools and processors and latest patches in the master scripts.

It has been recommended to me to have a citation included for my scripts should they be used in any research application. In the Github code there is a citation script that writes a citation in APA form. This is the format accepted by Github, if you need it in another format I can provide information for you.

I have now set up sponsorships and donations for my GitHub account. Sponsorships help the author push updates to the end user faster, maintain and update code, develop new code, provide end user support, and end user consulting. If you would like to make a donation or sponsor these codes please go to this link ( <https://github.com/sponsors/HathewayWill> ). Any user who sponsors or donates will receive a thank you email, a post on the authors LinkedIn, and a mention on future release notes.

As always, I write these scripts to better help the greater atmospheric community. I seek no recognition or accolades. If I can help the advancement of the global atmospheric community through this small effort then I will be happy.

I ask that you please share these scripts amongst your friends, colleagues, any email lists you manage, or newsletters. .

If you like my code please feel free to star and follow it on github as well as add me on LinkedIn!

Regards,

Will Hatheway

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