Mohammad Taufiq Hassan Mozumder

CONTACT	123 Cheomdan gwagiro, oryong-dong, buk-gu, Gwangju 500-712, Gwangju Institute of Science and Technology, South Korea.	**E-mail:** taufiq@gist.ac.kr **Website:** http://taufiqhassan06.wix.com/taufiqhassan06 **Phone:** +82-10-6312-4105

EDUCATION

MS in Environmental Science and Engineering   2013 — 2015

Gwangju Institute of Science and Technology

Thesis Title: Global MACR model to determine the coefficients of an analytical aerosol forcing equation

Supervisor: Dr. Chung E. Chul

Brief Synopsis of Research:

An analytical expression in order to explain the aerosol radiative forcing has a two-fold effect. First of all, we can quickly understand the radiative forcing change with respect to key parameters of atmosphere, surface and aerosol. Secondly, we will be able to realize the influence of aerosol microphysics and optics on radiative forcing. My study involves in deriving such expression and verify it with the global MACR (Monte-Carlo Aerosol Cloud Radiation) model. We've found that the expression was realistic in case of cloud-free conditions.

A detailed summary of this work can be found in my personal website.

BSc in Chemical Engineering   2006 — 2012

Bangladesh University of Engineering and Technology

Modules Included:

Physical Optics, Heat, Wave and Oscillations; Chemical Engineering Thermodynamics I&II; Computer Programming and Applications; Fluid Mechanics; Numerical Analysis and Statistics; Heat Transfer; Mass Transfer I&II; Mathematical Models in Chemical Engineering

RESEARCH EXPERIENCE

Numerical Modeling (2013-2015)

I have compiled WRF-ARW for the Climate Modeling laboratory, where I worked as a research assistant. In the meantime, I wrote a course paper on cyclone tracking using the developed WRF model. I have also Implemented WRF for the Korean Peninsula with MERRA data. In order to facilitate the use of WRF for research work, several compilation and running scripts (shell) as well as documents were made for the members.

On the other hand, I have also worked with CAM3 (Community Atmosphere Model 3.0) on a message passing parallel computing system. I have built the CMAQ (Community Multi-scale Air Quality) model developed by US EPA for the using in Climate Modeling laboratory. Created documentation and Scripting for easier access for all lab members.

Further experience came from working with radiation model where I have used Global MACR (Monte-Carlo Aerosol Radiation) model extensively as in Choi and Chung (2014). Used to estimate global aerosol forcing with single scattering albedo and asymmetric parameter from MPI implemented simulations in 88 CPUs. The model was run for estimating both cloudy-sky and cloud free conditions.

Data Handling (2013-2015)

Having experience with shell-scripting, Fortran, GRADS and Matlab; I had the privilege to work with satellite data. Working with different file formats (netCDF, HDF, ASCII etc) and their structures have helped me to develop experience on data analysis, management, conversion and storage.

Research Student (2010-2011)

BSc thesis work at Radioisotope Production Division (RIPD) in Nuclear Science and Technology (INST) as a research student.

For detailed information on my research experience, visit my personal website.

PROGRAMMING	FORTRAN
	GRADS scripts
	Unix Shell scripts
	Python
	JAVA
SKILLS	MATLAB
	GRADS
	SPSS
	Parallel Computing
	R
	Linux (Centos, Fedora)
	Windows
	Microsoft Office
	HYSIS
	VM

LANGUAGE PROFICIENCY

English

IELTS Score - 7.0

RESEARCH INTEREST

The possibilities, vastness, challenges and the unknown in working with Numerical models has always fascinated me. Modelers are now concerned about the high resolution model simulations in order to explain regional scale climate variability. During my work with WRF and CMAQ model, i have come to acknowledge the importance of high resolution emission inventories. On the other hand, I have seen how a radiation model can estimate radiative forcing without any actual inventories. However, in all these cases, regional scale variability is an unresolved issue. My research interest involves working in solving such issues.

PUBLICATIONS

Journals

- Ruhul Amin M*., Azizul Haque, Avishek Biswas and Taufiq Hassan Mozumder 2012: Preparation and Labeling of 99Tcm Kit in Pharmaceutical Grade Clean Room. Journal of Chemical Engineering, IEB, Vol. ChE 27, No. 2, December 2012.

- Jung-Eun Chu, Chul E. Chung, Taufiq Hassan, Hwayoung Jeoung, Spyros Pandis, Michael Schulz, Kyung-Ja Ha : Revealing global abundance of strongly-absorbing brown carbon aerosols. To be submitted to *Science*