

Marco van Hulten

Curriculum Vitae

Personal data

Name: Hulten, M.M.P. van
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Education and certification

- MSc History and Foundations of Physics (degree received in 2009)
- BSc High Performance Computing, Physics (degree received in 2006)
- Linux Professional Institute 1 and 2 (certificates received in 2009)

Languages

Native language: *Dutch*

CEFR language proficiency:¹

Language	<i>Understanding</i>		<i>Speaking</i>		<i>Writing</i>	global proficiency:
	listening	reading	interaction	production		
<i>English</i>	C2	C2	C1	C1	C1	proficient user
<i>Esperanto</i>	B2	B2	B2	B1	B2	independent user
<i>German</i>	A1	A2	A2	A2	A2	basic user

¹http://www.coe.int/t/dg4/linguistic/Source/Framework_en.pdf

Career

Education

- 2009 – now PhD, Oceanography, Royal Netherlands Meteorological Institute (KNMI)
- 2006 – 2009 MSc, Physics (specialisation: Philosophy and history of physics)
- 1999 – 2006 BSc, Physics (specialisation: High performance computing)
- 1992 – 1999 Secondary education

Work experience²

- | | | |
|-------------|-----------------------|---|
| 2009 – 2013 | KNMI | PhD in <i>climate modelling</i> and <i>oceanography</i> |
| 2007 – 2009 | KNMI | Workstation support GNU/Linux (Debian and Fedora) |
| 2002 – 2009 | SSH Utrecht | CERT-SSHU advisor and anti-abuse coordinator |
| 2008 | Instituut Maltha | Tutoring secondary school students in mathematics |
| 2002 – 2008 | University of Utrecht | Student assistant for mathematics and computer science |
| 2006 | Simed International | System administrator (servers and workplace) |
| 2005 | Log Lines B.V. | iSCSI project developer and GNU/Linux operator |
| 2004 – 2006 | OGD | Several migration, helpdesk and administration projects |
| 1999 | ALCOA Drunen | Helpdesk (second, third line) |
| 1992 – 1998 | Van Delft tomatoes | Employee |

Community service

- 2007 – 2009 Chairman of the IBB Woonbestuur (tenant foundation of Ina Boudier Bakkerlaan)
- 2008 – 2009 Editor-in-chief of the trimester magazine for IBB tenants
- 2000 – 2008 Installer, tester and helpdesker of the network for tenants of IBB

Scientific background (details)

Doctor of Philosophy. At the moment I am finishing a PhD in *climate modelling* and *oceanography*. By means of models for trace metals like manganese and aluminium, and respective observations from Rob Middag et al., I have gained more insight in the cycling of these trace elements and its relevance to the global carbon cycle. These models have been written in collaboration with colleagues throughout Europe and have been implemented by myself. These new insights are of significant importance to other research. For instance, aluminium is used as a tracer for dust deposition in the ocean, constraining the uncertainty on the availability of essential nutrients like iron and manganese to the ocean. Manganese *is* such an essential nutrient and is also essential in the understanding of the removal of other trace nutrients by means of scavenging onto manganese oxides.

Master of Science. In 2009 I was awarded with a Master's degree in *history and foundations of physics*. Under supervision of Jeroen van Dongen and Dennis Dieks I wrote a thesis about the foundations of space and time. The title of the thesis was "Mach,

²References upon request.

Einstein and Relationalism”. The purpose of the research was to find out whether the general theory of relativity is a Machian theory.

Bachelor of Science. In 2006 I received a Bachelor’s degree in *physics*. Under supervision of Aad van der Steen I wrote a thesis about the parallelisation of an algorithm. The title of the thesis was “Parallelization of a sparse matrix-vector multiplication algorithm”. The purpose of this research was to find out what is the best way to parallelise a program which processes so much data that I/O is unavoidable, using MPI-2 (Message Passing Interface). The result of the research might be used to parallelise algorithms of astronomers or meteorologists.

Publications and seminar presentations.

- Vienna, April 2013, “Aluminium in an ocean GCM: sources and sinks” (presentation)
- van Hulst, M.M.P., A. Sterl, A. Tagliabue, J.-C. Dutay, M. Gehlen, H.J.W. de Baar, and R. Middag (2012). “Aluminium in an ocean general circulation model compared with the West Atlantic Geotraces cruises”. In: *Journal of Marine Systems*. ISSN: 0924-7963. DOI: 10.1016/j.jmarsys.2012.05.005. arXiv:1202.4679.
- Grésillon, August 2012, “Oceano kaj klimato” (colloquium)
- Texel, January 2012, “Aluminium in a general circulation model” (colloquium)
- Liège, May 2011, “Aluminium in an ocean general circulation model” (presentation)

Additional courses.

- System Design (PhD programming course by Camiel Severijns)
- Programming and Correctness (MSc course by Wishnu Prasetya)³
- Biogeochemical Cycles (MSc course by Jack Middelburg)³
- Dynamical Oceanography (MSc course by Henk Dijkstra)³
- Oceanography (MSc course by Hein de Baar)

Summer schools. From 2006 to 2009 I participated in several summer schools in foundations of physics, among which a theoretical physics course at the University of Utrecht and two philosophy of physics courses organised by the University of Geneva and the University of München, hosting interesting speakers such as Carlo Rovelli, John Norton and Christian Wütrich. In 2011 I participated in a summer school on physical oceanography, coorganised by Martin Visbeck.

³Exam applicable and passed.

Information Technology (details)

Programming

Before my scientific education, I started programming in *Pascal* and *Delphi*. During my studies in physics, I learnt and used the language *C* and *Fortran* (including the MPI-2 library), as well as several scripting languages among which *Bash*. During my PhD I learnt to use the *R* language, the *FERRET* visualisation tool, *C++* and *Haskell*. I also have a command of document markup languages like *LaTeX* and *HTML*, and am always willing to learn more.

System operating

I almost exclusively use GNU/Linux and other free software. I have extensive work experience in this field. The usage of free (libre) software in system administration is an alternative for the Microsoft-centric environment. Because of expensive licences and the difficulty to maintain a Microsoft-centric environment, a lot of money is used inefficiently. With free software these specific disadvantages do not exist and it is therefore in general a better choice.

Several IT projects:

- Consulting on the advisory board of *CERT-SSHU*, concerning functionality and security of the internetwork of tenants of SSH Utrecht (2001–now).
- Setting up iSCSI from a SAN disk array at *LogLines B.V.* (2006).
- Testing, employing and migrating of the GNU/Linux distribution Fedora at Royal Netherlands Meteorological Institute (*KNMI*) (2009).
- Analysing the efficiency of, and implementing, the configuration management tool *Puppet* within *KNMI* (2009).

I can work with all GNU/Linux distributions (from *LFS* to *Ubuntu*), but I have the most extensive knowledge of Debian GNU/Linux. I also have an extensive command of OpenBSD (installation and managing of e.g. Apache and Postfix). Of course I have knowledge of networks (OSI model) and hardware (assembling).

Helpdesk

For several organisations I did some helpdesk work. In this way, I gained experience with troubleshooting and with communicating with the end user.

- Helpdesk at *ALCOA* (Aluminium Company of America)
- Via *OGD* (Operator Group Delft): several helpdesk jobs (first, second and third line)
- In the Internet support group at the Ina Boudier Bakkerlaan I served my community by helping tenants with their Internet connection