**CURRICULUM VITAE - Michel Groen**

**Personal Information**

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| Name: | Michel M.A. Groen |
| Profession: | Geophysicist-Hydrogeologist |
| Nationality / DOB / Civil Status: | Netherlands / 18 August 1956 / Married |

**Key Qualifications**

Geophysical and hydrogeological data acquisition (on and off shore), field work and interpretation, geophysical methods, water well drilling, logging and sampling.

**Summary of quality and experience**

Following a MSc. Hydrogeology developed extensive experience in hydrogeological and geophysical data collection, field work and analysis. Since 1982 worked as hydrogeologist and geophysicist at Iwaco, BGR, VU, and for Fugro, Royal Haskoning, Acacia, Sea Spring Water and CSIRO. Lecturer and field work teacher in hydrogeology and applied geophysics at Vrije University Amsterdam (VU). Heads the fieldwork and instrumentation department at Faculty of Earth Sciences at VU since 2004.

**Education**

- MSc. Hydrogeology, focus geophysics and isotope geology, Vrije University Amsterdam, 1989

**Employment**

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| 2009-present | Interim Head of the central laboratories, Faculty of Earth Science VU |
| 2008-present | Teaching in: MSc. course Field Instrumentation and MSc. course Field Hydrology Portugal. MSc. course Applied Geophysics |
| 2004-present | Head of the Dep. Fieldwork and Instrumentation, Faculty of Earth Sciences, VU |
| 1988-present | Field work teacher and instrumentation specialist, VU<br>Field work contractor for Fugro, Haskoning, Acacia, SSW, CSIRO |
| 1987 | Geophysicist at BGR |
| 1985 | Hydrogeologist in Nicaragua |
| 1984 | Hydrogeological fieldwork teacher for MSc. students VU + IHE-Unesco (Delft) |
| 1983 | Hydrogeologist -geophysicist in Mozambique |
| 1982 | Geophysicist at IWACO |

**Working Experience**

2009-present

- Interim Head of the Central Laboratories, Faculty of Earth Science, VU

2008-present

- Lecturer and field work teacher VU (MSc. courses “Field Instrumentation”, “Field Hydrology Portugal” and “Applied Geophysics”)

2004-present

- Responsibility for equipment and instrumentation for Geosciences fieldwork education and research data acquisition. Radiation officer VU (2008).

1988-present

- Coordinator for field campaigns for hydro geological and meteorological experiments in Botswana, Greenland, Spain, Arizona etc (data logging, discharge measurements, groundwater mapping and monitoring, atmospheric studies).
- Field work and instrumentation in groundwater hydrology and geophysics for Master and PHD students in several countries, external jobs for several contractors and research institutes (Fugro, Haskoning, Acacia, CSIRO etc.)

1987

- Geophysicist in Mali (BGR), DC, Frequency Domain VLF (EM 16), EM 3, ground verification of satellite images

1985

- Hydro geologist in Nicaraqua, regional groundwater study for water supply of Juigalpa, Chontales (DC resistivity, Magnetometer).

1984

- Fieldwork docent for hydro geological Fieldwork for Master students Hydrogeology, VU, IHE (Delft) (alpine catchments in northern Italy)

1983

- Hydrogeological and geophysical field studies and analysis (mostly DC resistivity)

1982

- Geophysical field surveys, aerial photo interpretation, pumping tests for rural water supply (DC resistivity, Frequency domain EM 34 Geonics)

**Country Experience**

Niger, Burkina Faso, Surinam, Netherlands, Portugal, France, Spain, Italy, Mozambique, Mali, Botswana, Greenland, Spain, USA, Nicaragua, USA..

**Training**

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| 1990-2001: | Courses on applied geophysics, borehole logging, data logging systems. |
| 1999: | Radiation and safety course, level 3 and 4, ECN Petten NL |
| 1976-2010 | Drilling with small rigs for undisturbed coring in sediments.<br>Radiation officer level 3<br>Diesel and gasoline engine maintenance, Arc welding, MIG/TIG, (plasma) cutting (Technical School Amsterdam).<br>Navigation and machinery for small vessels in coastal areas (Den Helder)<br>Navigation Certificate cargo ships (20 – 40 mtr) “beperkt groot vaarbewijs”<br>Corrosion protection for small vessels<br>Driver’s licenses: ABCDE (all vehicles). |

**Equipment Experience**

- Time domain resistivity: Geonics Protem, Zonge Nanotem and Zerotem
- Frequency Domain: Geonics EM 34, EM 16, EM 39, Apex MaxMin, SGU
- DC: Terra meter SAS 4000 LUND 2D/3D resistivity profiling, Jesse deep sounding system, Ground penetrating radar
- Seismic refraction, GEODE
- Software: 2D/3D RESINV, TEMIX, D GPS (LEICA),
- Extensive working experience with and programming of ( Cambell) data loggers, all kinds of meteorological and hydro geological sensors, discharge measurements, groundwater sampling and monitoring, undisturbed soil sampling and coring of sediments (freezing of lake sediments, “frozen finger”)

**Publications**


- Dirks, F., Geirnaert, W., Groen, M., 1983. Electromagnetic profiling in the investigation of small scale ground¬water flow systems. MIIGS symposium, Noordwijkerhout, The Netherlands.
- Appelo, A.J., Groen, M., Heidweiller, V.M.L., Smit, P.M., 1983. Hydrochemistry of springs in an Alpine carbonate/serpentines terrain
- Geirneart, W., Groen, M., Sommen, J. v.d., Leusink, A., 1983. Isotope studies as a final stage in groundwater investigations on the African shield. Int. Symp. on challenges in African hydrology and water resources, Harare, Zimbabwe. Int. Symp. on water rock interaction, Misasa, Japan.
- Griend, A.A. v/d, Owe, M., Groen, M., Stoll, M.P., 1991. Measurement and spatial variation of thermal infrared surface emissi¬vity in a savanne environment. Water Resources research, vol. 27, no. 3, March 1991.
- Scatena, F.N., Bruijnzeel L.A., Dijk, A.I.J.M. van, Groen, M., Hogezand, R.J.P. van, 2003. Storm flow generation in small rain forest catchments in the Luquillo Experimental Forest, Puerto Rico. Submitted to Hydrological Processes 18, 505-530 (2004).
- In writing: Application of TDEM in shallow offshore groundwater studies


**Languages**

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| Dutch: | native |
| English: | excellent |
| German / French / Spanish: | working knowledge |