

**Dave Wells:** is

**Professor Emeritus** in the Department of Geodesy and Geomatics Engineering at the **University of New Brunswick**; former **Contract Professor** in the Division of Marine Science at the **University of Southern Mississippi**; and loosely affiliated with the Center for Coastal and Ocean Mapping at the **University of New Hampshire**.

1999-2021 at USM Dave annually taught courses in Applied Bathymetry, Kinematic Positioning, and Applied Acoustics. 2012-2013 he was asked by the USM Provost to address newly-hired USM faculty members on "Pedagogy for today's professor", and to lead several seminar series on "Scientific Teaching".

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**Statement of career objectives**

I have transitioned from my third career to my fourth. The first three were

- (1) at the Bedford Institute of Oceanography (1964-1980);
- (2) at the University of New Brunswick (1980-1998); and
- (3) at the University of Southern Mississippi (1999-2021) plus organization of 77 six-day Multibeam Sonar Training Courses (1994-2019). In 2019 I phased out of the MBC (replaced by Ian Church). Due to my high risk for contracting a severe case of COVID-19, between March 2020 and May 2021 I taught my USM courses remotely via Zoom from my home in Canada. In July 2021, I was pleased that USM selected Dr Johnson Oguntuase as a new tenure track hydrographic faculty member. Johnson will be teaching the courses I have taught for many years.
- (4) My intended fourth career is to deepen my involvement in Canadian healthcare improvement activities, particularly concerning patient safety, the patient voice and patient engagement in healthcare decision-making, using digital health methods.

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**Health System activities**

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| 2020-2021                | co-facilitator for online presentations of abbreviated versions of the CIHR-initiated 3-module Foundations of Patient Oriented Research (with Monica Parry and Dawn Richards on November 19, 23, and 25; with Yvonne Hanson on November 2-3; December 4-5; and January 25-26; with Caroline José on February 25-26; March 25-26; April 29-30; and May 27-28, and future monthly courses from September 2021 to March 2022)   |
| 2021                     | Member, <i>Canadian Nursing Informatics Association</i> Virtual annual conference steering committee, & Workshop presenter on " <i>Human Computer Interaction and Design Thinking</i> "  |
| 2020                     | Co-author of peer-reviewed paper:<br><a href="https://link.springer.com/article/10.1007%2Fs40271-020-00460-5">https://link.springer.com/article/10.1007%2Fs40271-020-00460-5</a>   |
| (Virtual) participant at |  |
|                          | <i>eHealth Canada 2020</i> -July<br><i>Diabetes Action Canada Annual Workshop (co-author)</i> - July<br><i>MSSU Annual scientific Conference</i> - September   |
| 2020-                    | Member, <i>Diabetes Action Canada</i> Strategic Planning Committee; Collective Patient Circle; Operations and Management Committee   |
| 2020                     | Member, <i>MSSU Annual Scientific Conference Steering Committee</i>  |
| 2019-                    | Participant at<br><i>Canadian Association for Health Services and Policy Research (CAHSPR)</i> AI Policy Forum-January<br><i>2019 Clinical Trials Ontario (CTO) Conference POR Workshop (presenter)</i> - March<br><i>2019 National Nursing Data Standards (NNDS) Symposium</i> - May<br><i>NB PIHCI Collaborative Evaluation Planning Workshop</i> - May<br><i>eHealth Canada 2019</i> - May<br><i>Canadian Health Information Management Association (CHIMA) Education Day</i> - June<br><i>2019 National Health Leadership Conference (NHLC)</i> - June<br><i>2019 Canadian Nursing Informatics Association (CNIA) Conference</i> - June<br><i>10<sup>th</sup> International Shared Decision Making (ISDM) Conference (co-author)</i> - July<br><i>2019 Canadian Medical Association (CMA) Health Summit</i> - August<br><i>11<sup>th</sup> NB Health Research Conference</i> - November<br><i>2019 Canadian Health Infoway Partnership Conference</i> - November |
| 2019-                    | Member, <i>Canadian Nursing Informatics Association</i>  |
| 2019-                    | Member, <i>Diabetes Action Canada</i> Research Governing Committee (RGC)   |
| 2019                     | Qualified as <b>Certified Professional in Healthcare Information &amp; Management Systems</b> (CPHIMS-CA)  |
| 2018-                    | Patient team-member developing two evidence-based web tools for Clinical Trials Ontario to facilitate engagement of patients in design, execution and evaluation of results from clinical trials. One tool is a decision aid for patients who may consider such engagement. The other tool is for investigators and industry to inform them of patient engagement advantages and implementation methods. Initial results presented at <i>Shared Decision Making Conference</i> , July 2019.  |
| 2018-                    | Participant at<br><i>2018 National Nursing Data Standards (NNDS) Symposium</i> - May<br><i>eHealth Canada 2018</i> - May   |

- Blockchain in Healthcare Canada* - June  
 2018 *Canadian Medical Association (CMA) Health Summit* - August  
*Driving the Future of Digital Health* - October  
 10<sup>th</sup> *NB Health Research Conference* - November  
 2018 *Canada Health Infoway Partnership Conference*
- 2018- Member, *Diabetes Action Canada* Postdoctoral Fellowship Selection Panel  
 2018- Member, *Zoomers on the go* Advisory Committee  
 2018- Member, Ontario Chapter of *Healthcare Information and Management Systems Society (HiMSS)*  
 2013- Patient advisor, *Maritime SPOR Support Unit* (SPOR = *Strategy for Patient Oriented Research*).  
<http://www.spor-maritime-srap.ca/about>
- 2012- Member, *Patients for Patient Safety Canada (PPFSC)*. Patient-led program of the Canadian Patient Safety Institute. PPFSC champions the patient's voice to advance safe healthcare  
<http://www.patientsforpatientsafety.ca/English/Pages/default.aspx>
- 2012-2015 Patient Representative, *Expert Advisory Panel of the Labelling and Packaging Project of the Institute for Safe Medication Practices Canada*. Members from USA, Australia, New Zealand, UK, Netherlands, Germany
- 2012-2015 Patient Representative, *Taming of the Queue* Conference Steering Committee.  
 In 2014 Presented experiences as *Patient input on providing appropriate care*
- 2012-2015 Patient Representative, *New Brunswick Primary Health Care Steering Committee*. Changed the delivery of primary health care in New Brunswick. Produced the Guidelines document for Family Medicine New Brunswick, announced June 22, 2017  
[http://www2.gnb.ca/content/gnb/en/news/news\\_release.2017.06.0899.html](http://www2.gnb.ca/content/gnb/en/news/news_release.2017.06.0899.html)
- 2009- Member *Digital Health Canada* (formerly *COACH: Canada's Health Information Association*)  
 2005-2011 Patient Representative & **Chair**, *New Brunswick Surgical Care Network Advisory Committee*. Designed and implemented new procedures which reduced surgical wait times in New Brunswick 50% to 70%  
<http://surgerynewbrunswick.ca>

#### Education

- 1974 Doctor of Philosophy (Surveying Engineering), University of New Brunswick  
 1967 Registered Professional Engineer, Province of Nova Scotia (2007 became Life Member)  
 1966 Master of Applied Science (Engineering Physics), University of British Columbia  
 1963 Bachelor of Applied Science (Engineering Physics), University of British Columbia  
 1961 Bachelor of Science (Physics and Mathematics), Mount Allison University

#### Employment

- 1999-2021 President, *HydroMetrica Limited* (organized 77 Multibeam Sonar courses since 1994)  
 1986-1998 President, *Canadian GPS Associates*, published *Guide to GPS Positioning* (sold 12,500 copies)  
 1985-1997 GPS short course instructor, *Navtech Seminars Inc* (taught 30 courses)  
 1980-1998 Associate Professor & Professor, University of New Brunswick  
 1965-1980 Scientific Officer & Research Scientist, Bedford Institute of Oceanography, Dartmouth, NS

#### Honours & Appointments

- 2017 Inducted, *Hydrographer Hall of Fame*, The Hydrographic Society of America, Galveston  
 2013 Recipient, *Portuguese Navy Cross, 1st Class* from Navy Chief of Staff and Minister of Defense  
 2001-2003 Member, *Subject Matter Expert Team*, Oceanographer of the (US) Navy  
 2001 Recipient, *US Navy Superior Public Service Award*  
 1990-2005 Member, *International Board on Standards of Competence for Hydrographic Surveying and Nautical Cartography*  
 1988-1990 Member, *National Marine Council* of Canada, advising Minister of Fisheries and Oceans  
 1986-1987 Canadian national delegate to *International Association of Geodesy*

#### Natural Sciences and Engineering Research Council of Canada Panels

- 1995-1998 Member, *Women's Faculty Award Selection Panel*, NSERC  
 1991 Chair, *Fisheries and Oceans Strategic Grant Selection Panel*, NSERC  
 1990-1993 Member, *International Fellowships Selection Panel*, NSERC  
 1989-1992 Member, *Fisheries and Oceans Strategic Grant Selection Panel*, NSERC  
 1984-1988 Member, *Advisory Committee on Engineering*, NSERC\*

#### Visiting Professorships

- 1997 Visiting Professor, **Technical University of Vienna** (occupying Christian Doppler's office)  
 1996-2001 Visiting Professor (summers), **Universiti Teknologi Malaysia**, Johore Bahru  
 1985 Visiting Professor, **Hannover University, Stuttgart University, Institut Teknologi Bandung**  
 1984 Visiting Professor, **Wuhan Technical University of Surveying & Mapping**, China

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## Student supervision

Since 1980 Dave supervised research of 8 PhD recipients, 4 from UNB, 3 from USM, and 1 from the University of New Orleans. He supervised research of 36 Master's degree recipients UNB, and 1 from the University of New Hampshire. He supervised 15 students seeking higher degrees at Laval, Hannover, Delft, Stuttgart, Athens, and Teheran Universities, based on research conducted during 3 to 12 month stays at UNB. At USM he is on the examining committee for the course-only Masters degree in hydrography, graduating 210 students between August 2000 and August 2021.

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## Collaborations

In 1982 Dave and three colleagues founded the UNB *Geodetic Research Laboratory*, that continues today, with research linkages to many universities and government agencies across the world, most prominently the Jet Propulsion Lab.

In 1988 Dave and five colleagues founded the UNB *Ocean Mapping Group*, which evolved into the Chair in Ocean Mapping, attracting two new faculty members. Over the years, this Chair has been supported in large part by annual sponsorship fees from up to a dozen organizations around the world, and research ties to almost all other ocean mapping research groups. The OMG continues today under the leadership of Ian Church.

Since 1980 Dave co-authored publications with over 100 other researchers, from within his own and other universities, government agencies, and industry, in Canada and in the USA. Many are reports on joint research projects.

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## Publications

Since 1962, Dave published or presented 299 scientific and technical papers on a broad range of topics in geodesy, navigation, hydrography, and ocean mapping. A few of the most relevant are:

Hughes Clarke, Mayer, Wells (1996) *Shallow water imaging multibeam sonars: a new tool for investigating seafloor processes in the coastal zone and on the continental shelf*. **Marine Geophysical Researches**. 18, 607-629.

Du, Wells, Mayer (1996). *An approach to automatic detection of outliers in multibeam echo sounding data*. **The Hydrographic Journal**, No. 79, pp. 19-23. (won best paper of 1996)

Mayer, Hughes Clarke, Wells, and the HYGRO-92 team (1992) *A multi-faceted ground truthing experiment in the Bay of Fundy*. In NG Pace & DN Langhorne, eds., **Acoustic classification and mapping of the seabed**, Proceedings of the Institute of Acoustics, v15 Pt 2, 203-220, Bath University Press, Bath UK.

Ware, Slipp, Wong, Nickerson, Wells, Lee, Dodd, Costello (1992) *A system for cleaning high volume bathymetry*, **Int'l Hydrographic Review**, 69(2) pp. 77-94. This became the basis for CARIS HIPS.

Wells, Mayer, Hughes Clark (1991) *Ocean mapping: from where? to what?* **CISM Journal** 45, 383-391

Ware, Knight, Wells (1991) *Memory intensive statistical algorithms for multibeam bathymetric data*. **Computers & Geosciences** 17, 985-993

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## Research Funding

While at UNB between 1980 and 2000, Dave was awarded 87 grants and contracts worth a total of \$4,715,651. Of these he was sole Principal Investigator for 42 (48%) of these awards, and for the remainder joined with 29 different co-investigators from UNB, other universities, and industry. In addition, between 1988 and 1991 Dave worked with the Chair of the UNB Board of Governors to raise \$1,500,000 to fund the establishment of the Chair in Ocean Mapping.

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## IHR

Since 2011, with permission and cooperation from the International Hydrographic Bureau (now International Hydrographic Secretariat), Dave lobbied for, organized and personally funded establishment of a Digital Repository for the *International Hydrographic Review*. This involved digital capture of the full collection of the International Hydrographic Review, published since 1923, representing the continuous "corporate record" of international hydrographic methods and technological evolution. The collection is now a free digital journal, available at

<https://journals.lib.unb.ca/index.php/ihr/index>

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## Arctic adventures

1968: helped to demonstrate that northern Greenland is 10,000 km<sup>2</sup> larger than depicted on the best available maps of that day (resulting in undying gratitude from Danish geodetic friends).

1974-1975: participated in the Arctic Ice Dynamics Joint Experiment (AIDJEX), an attempt to model the interaction between wind stress and sea-ice movement north of Point Barrow Alaska.

1979: navigator for the three ice camps of the Lomonosov Ridge Experiment (LOREX), drifting across the Lomonosov Ridge and approaching within 12 km of the North Pole. LOREX determined the ridge is continental in origin (not oceanic), with geopolitical implications regarding Canada's offshore territorial claims (specifically the "test of appurtenance" required under Article 76 of the Third United Nations Convention on the Law of the Sea).

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## My 23 Jobs

1 **Paperboy** – Montreal Gazette – delivered 60 papers before school each morning – 1951-1956

2 Bone china and crystal **sales clerk** – Birks store Calgary – summer 1955

3 **Construction worker** – hydroelectric power plant 3 miles east of Banff Alberta – summer 1956

- 4 **Officer Cadet** – Royal Canadian Air Force – boot camp St Jean QC – summer 1957
- 5 Officer Cadet – RCAF – **aeronautical engineering trainee** Aylmer ON – summer 1958
- 6 Officer – RCAF – **aircraft servicing officer** commanding 20 NCOs Summerside PEI – summer 1959
- 7 **Editor-in-chief** – Mount Allison Argosy Weekly student newspaper – 1959-1960
- 8 **Technical writer** – Alcan General Engineering Department Montreal – 1960
- 9 Construction cost **accountant** - Alcan General Engineering Department Montreal – 1961
- 10 Restroom **architect** – Crown Zellerbach paper mill Ocean Falls BC – summer 1962
- 11 Experimental physics **lab instructor** – University of British Columbia Vancouver – 1962-1963
- 12 Nuclear Physics **researcher** – Localized modes and the Mossbauer Effect MASc UBC – 1963-1965
- 13 Electronic design **engineer** – Bedford Institute of Oceanography Halifax NS – 1965-1966
- 14 **Professional engineer** - Engineers Nova Scotia (life member) - 1967
- 15 Computer **system manager** – BIO PDP8 s/n 169 & 198 – 1966-1969
- 16 Arctic **geodesist** – Greenland August 1968, Point Barrow AK 1974-1976
- 17 Satellite geodesy **software developer** – BIO 1966-1970 & University of New Brunswick 1970-1975
- 18 Integrated navigation **system developer** – BIO 1975-1980
- 19 Part-time university **instructor** – UNB 1970-1975
- 20 North Pole **ice camp navigator** – Lomonosov Ridge Experiment March-April 1979
- 21 University **Professor** – UNB 1980-present (now Professor Emeritus), University of Southern Mississippi 1999-2021
- 22 **Patient Partner** and Advocate - Canadian healthcare 2005-present
- 23 **Certified Professional in Healthcare Information & Management Systems** - 2019-present

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**Personal**

Dave turned 82 on 2021-06-29. He returned to downhill skiing in January 2014, after a 15-year absence. During 55 days skiing in Idaho 2014-2020 he did not fall (seriously) once. 45 years ago, he was a Ski Patroller. Dave has 659 Fado songs on his iPhone. His favorite singer is Mariza.

2021-08-17