

FRANK EDGAR MULLER -KARGER
CURRICULUM VITAE

Work Address

University of South Florida

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I. Personal Information :

Ancestry: Hispanic
Employer: University of South Florida, College of Marine Science
140 7th Ave. South, St. Petersburg, FL 33701

II. Education :

Primary and High School :
1974 Colegio "Humboldt", Caracas, Venezuela.

Undergraduate:

1974 Universidad Simón Bolívar, Caracas, Venezuela. Chemical Engineering. (1976, transferred to Florida Institute of Technology).
1979 Bachelor in Biological Oceanography. Florida Institute of Technology. Melbourne, FL.

Graduate:

1984 Master of Science in Oceanography. Institute of Marine Science. University of Alaska, Fairbanks, AK. Thesis: Lower trophic level studies in the marginal sea-ice zone. Advisor: Dr. Vera Alexander.
1988 Ph.D. in Marine and Estuarine Sciences. University of Maryland, Center for Environmental and Estuarine Studies (UMCEES). College Park, MD and Horn Point Environmental Laboratories, Cambridge, MD. Dissertation: Variation in the seasonal distribution of phytoplankton in the Caribbean Sea as observed in a series of Coastal Zone Color Scanner images (1978-1986). Advisors: Thomas R. Fisher (U. Maryland), and Charles R. McClain (NASA, Goddard Space Flight Center).
2001 Master of Science in Management. University of South Florida. College of Business Administration. Tampa, FL. Organizational design, leadership, human resources and modern management principles and techniques.

III. Employment :

2000/- Full Professor. Tenured. University of South Florida
Employer: University of South Florida
140 7th Ave. S., St. Petersburg, FL 33701
2007/2009 Dean, School for Marine Science and Technology, Univ. Massachusetts Dartmouth
Full Professor. Tenured. Univ. Massachusetts Dartmouth
Employer: University of Massachusetts Dartmouth
706 South Rodney French Boulevard
New Bedford, MA 02744-1221
Supervisor: Dr. Anthony Garro, Provost
agarro@umassd.edu; (508) 999-8024
2003/05 College of Marine Science Dean's Advisory Council/Biological Oceanography
2001/04 Commissioner, U.S. Commission on Ocean Policy
Voluntary, serving as nominee of and by appointment of the President of the United States. USCOP Chair: Adm. (USN/Retired) James D. Watkins
1994/00 Associate Professor. Tenured 1994. University of South Florida

NSF (2012-2019) Partnerships in International Research and Education (PIRE): Context Sensitive Implementation of Synergistic Water-Energy Systems. PI. James Mihelcic (USF), FMK co-I.

NSF (1995 - 2013) The Cariaco basin oceanographic time series program. FMK PI, present Co-Is: R. Varela, Y Astor, M. Scranton, G. Taylor, R. Thunell, and K. Fanning.

NSF (2010-2012) EAR-1043323 CCEP: Coastal Areas Climate Change Education (CACCE) Partnership. PI: Jeff Ryan (USF Geology). FMK co-I.

NASA/NOAA (2019-2022) South Florida MarineBiodiversity Observation Network (MBON). FMK PI, co-I: Enrique Montes (USF), Steve Gittings (National Marine Sanctuaries Office), Maria Kavanaugh (Oregon State University).

NASA/NOAA (2014-2019) National Marine Sanctuaries as Sentinel Sites for a Demonstration MarineBiodiversity Observation Network (MBON). FMK PI, co-I: Francisco Chavez (MBARI), Enrique Montes (USF), Steve Gittings (National Marine Sanctuaries Office), Scott Doney (WHOI), Maria Kavanaugh (Oregon State University).

NASA (2018-2020) Laying the foundations of the Pole-to-Pole of the Americas Marine Biodiversity Observation Network: methodologies, capacity-building, and data sharing for biological observations across the Americas (PI: Enrique Montes)

NASA (2018-2020)(Via Oregon State University) Dynamic Seascapes to Form a Biogeographic Framework of a Global Marine Biodiversity Observing Network (PI: Maria Kavanaugh)

NASA (2017-2019)(Via North Carolina State University) From Arboreal to Benthic Communities: the ABCs of Land to Ocean Biodiversity Observations. PI: Erin Hestir.

NASA (2015-2018) Evaluating water quality and tropical vector-borne disease risk by satellite remote sensing (NESSF Fellowship to Doctoral student, Abdiel Laureano-Rosario).

NASA (Via ROFFS, Inc./PI; 2011-2015) Management and conservation of Atlantic bluefin tuna (*Thunnus thynnus*) and other highly migratory fish in the Gulf of Mexico under IPCC climate change scenarios: A study using regional climate and habitat models.

NASA (11/1/2009-10/31/2016). Decision Support System for Ecosystem-Based Management of Tropical Coral Reef Environments.

NASA (2014-2016). Florida Space Grant Consortium: Unlocking Earth's Secrets from Space; Education collaboration with Stewart Middle School, Tampa.

NASA An assessment of global organic carbon flux along continental margins. Co-I with C. Hu

NASA The mapping and monitoring of change in the Florida Keys reef tract from space using L7 and MODIS. Co-I with D. Palandro.

NASA A millennium global scale coral reef ecosystem assessment using high resolution remote sensing data. Co-I with S. Andrefouet and C. Hu

NASA Impact of large and small rivers on adjacent oceanic environments. Co-I with C. Hu

NASA EAGLE-EYE: Ecological Assessments of Generalized Littoral Environments – an Integrated EOS DB/Real-time MODIS Science Applications Project. Co-I with C. Hu

NASA: Collaborative Research with the NASA Marshall Space Flight Center.

NASA Collaborative effort with ROFFS, Inc. Study of Bluefin Tuna larvae distribution in the Gulf of Mexico. (Th.5 (001 Tc 6.287 -2 (e)0.6 (F)1.4 .5 (1.5 (ol)1.4 6 (C)-1.6 (o)]P)-1.3 (al)1.5 (r)4.7 Td [(C

Organizer, NASA Small Satellite Technology Initiative, NASA Remotely-Piloted Vehicle workshop.
Member, OceanObs'19 Program Committee
Member, Ocean Best Practices Working Group, Intergovernmental Oceanographic Commission
Member, GOOS Bio-Eco Panel, Intergovernmental Oceanographic Commission
Member, IGMETS, Intergovernmental Oceanographic Commission
Member, NASA PACE Science Definition Team
Member, NASA Ocean Biology and Biogeochemistry Strategic Planning Working Group
Member, NASA Biodiversity and Ecological Forecasting Strategic Planning Group
Member, SeaWiFS Science Team
Member, Landsat-7/ETM+ Science Team
Reviewer of scientific manuscripts for the AGU Global Biogeochemical Cycles.
Reviewer of scientific manuscripts for the AGU Journal of Geophysical Research.
Reviewer of scientific manuscripts for the AGU Geophysical Research Letters.
Reviewer of scientific manuscripts for the Journal of Remote Sensing of the Environment.
Reviewer of scientific manuscripts for the Journal of Continental Shelf Research.
Reviewer of scientific manuscripts for the Boletín Oceanográfico de la Universidad de Oriente.
Reviewer of scientific manuscripts for the Journal of the Institute of Marine Affairs, Trinidad & Tobago.
Reviewer of scientific manuscripts for the magazine Oceanography (Oceanography Society).
Reviewer of scientific manuscripts for the Marine Technology Society.
Reviewer of scientific proposals for NASA.
Reviewer of scientific proposals for NOAA.
Reviewer of scientific proposals for NSF (Biological Oceanography, Chemical Oceanography, OSTI).
Reviewer of scientific proposals for the Interamerican Institute for Global Change.
Reviewer of scientific proposals for the Florida Space Grant Consortium.
Reviewer of scientific proposals for the Environmental Protection Agency.
Reviewer of proposals for NASA, NSF, NOAA, EPA, ONR, NOPP, IAI

IX. Research and sea-going experience :

Extensive experience using a wide variety of remote sensing, as well as field biological, geological, chemical, and physical oceanographic equipment. Familiar with stable (nitrogen) and radioactive (carbon) isotope techniques in phytoplankton work. Participated in upwards of 40 cruises in tropical to high latitude environments.

X. Special skills :

Team leadership
Languages: Spanish, German, English
SCUBA (Advanced Open Water, Rescue training, DAN O2)
Methods for wet nutrient chemistry
Methods for autoanalyzer nutrient chemistry
Productivity assays (^{14}C and ^{15}N isotopes)
Computer systems and basic network management
Satellite and ground-based remote sensing (VIS, IR)

XI. Students and trainees while at USF :

Doctoral – Major Professor: Luis Lizcano Sandoval, Savannah Hartman, Cara Estes, Justin Saarinen, Matthew McCarthy, Abdiel Laureano-Rosario, Maria Vega-Rodríguez, Sennai Habtes, Karen Langbehn (USF English), Laura Lorenzoni, Inia Soto, Digna Rueda, Enrique Montes, David Palandro, Bisman Nababan, Fernando Gilbes, Lisa Vanderbloemen, Zhiqiang Chen. Non-USF/ Doctoral/Co-Major Professor:

Montes, Ana Lucia Odriozola.

- *Canonico, Gabrielle; Pier Luigi Buttigieg, Enrique Montes, Carol A, Stepien, Dawn Wright, Abigail Benson, Brian Helmuth, Mark John Costello, Frank Edgar Muller-Karger, Isabel Sousa Pinto, Hanieh Saeedi, Jan A Newton, Ward Appeltans, Nina Bednaršek, Levente Bodrossy, Benjamin Dale Best, Angelika Brandt, Kelly Goodwin, Katrin Iken, Antonio Marques, Patricia Miloslavich, Martin Ostrowski, Woody Turner, Eric 'Pieter Achterberg, Tom Barry, Omar Defeo, Gregorio Bigatti, Lea-Anne Henry, Berta Ramiro Sanchez, Pablo Durán Muñoz, MARIA MAR SACAU CUADRADO, Telmo Morato, Murray Roberts, Ana Garraida Garcia-Alegre and Bramley J. Murton. 2019. Global Observational Needs and Resources for Marine Biodiversity. *Frontiers in Marine Science*. <https://doi.org/10.3389/fmars.2019.00367>
- *Duffy, J. Emmett, Lisandro Benedetti-Cecchi, Joaquin A. Trinanes, Frank Edgar Muller-Karger, Rohani Ambo-Rappe, Christoffer Boström, Alejandro H. Buschmann, Jarrett Byrnes, Robert G Coles, Joel Creed, Leanne Cullen-Unsworth, Guillermo Diaz-Pulido, Carlos M. Duarte, Graham J. Edgar, Miguel Dino Fortes, Gustavo Jorge Goni, Chuanmin Hu, Xiaoping Huang,

(2019). Water temperature, salinity, and other parameters from CTD taken from the research vessel Hermano Gines at the CARIACO Ocean Time-Series location in the Southeastern Caribbean Sea (Cariaco Basin) from 1995-11-08 to 2017-01-17 (NCEI Accession 0189595). [indicate subset used]. NOAA National Centers for Environmental Information. Dataset. <https://accession.nodc.noaa.gov/0189595>.

Muller-Karger, Frank, Astor, Yrene, Benitez-Nelson, Claudia, Scranton, Mary I., Taylor, Gordon T., Thunell, Robert C., Varela, Ramon, Capelo, Juan, Guzman, Laurencia, Lorenzoni, Laura, Montes, Enrique, Rojas, Jaimie, Rueda-Roa, Digna. 2019. Time series composite CTD profiles from R/V Hermano Ginés cruises in the Cariaco Basin from 1995 through 2017 (CARIACO Ocean Time-Series Program). Dataset. 2019-06-06, DOI:10.15131/10200611(5)-2(0.5.013)-200611(0.11)-2-da

Pereira, Valerie Allain, Sonia Batten, Lisandro Benedetti-Checchi, J. Emmett Duffy, Raphael Kudela, Lisa-Maria Rebelo, Yunne Shin, Gary Geller. 2018. Advancing Marine Biological Observations and Data Requirements of the Complementary Essential Ocean Variables (EOVs) and Essential Biodiversity Variables (EBVs) Frameworks. *Frontiers in Marine Science*. <https://doi.org/10.3389/fmars.2018.00211>

*Navarro, Dr Laetitia, Dr Sheila Vergara, Dr Haigen Xu, Dr Mark Costello, Dr Tuyeni Heita Mwampamba, Dr Emily Nicholson, Miss HyeJin Kim, Dr Carlos Guerra, Dr Petteri Vihervaara, Dr Robert Guralnick, Dr Eren Turak, Dr Ilse Geijzendorffer, Dr Maria Cecilia Londoño, Dr Gary 4 (hi)1.4 (n,)3.5 ()0.31.4 (n,W8.3 (f)3.6gQLon)6.1ndoBertv

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181-182: 103-124.
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<https://www.nature.com/articles/s41599-017-0040-1>

2016

*Astor, Y., L. Guzmán, L. Troccoli, L. Lorenzoni, F. Muller-Karger. 2016. Síntesis de las tendencias de los parámetros oceanográficos y ópticos en la estación serie de tiempo CARIACO (enero 1996–diciembre 2013). Memoria de la Fundación La Salle de Ciencias Naturales 74 (181-182).

*Guzmán L, Varela R, Muller-Karger F, Lorenzoni L. 2016. Bio-optical characteristics of a red tide induced by *Mesodinium rubrum* in the Cariaco Basin, Venezuela. *Journal of Marine Systems*. 160

*Kavanaugh, M.T., Oliver, M J., Chavez, F. P., Letelier, R.M., Muller-Karger, F.E., Doney, S.C. 2016.

Seascapes as a new, 6 ()TJ -oMn(c)- .001 Tc -0.003 T36 (l) .6 (.)0.e()0.6 (of)3.6 o (.)0.e()0.6 (oe)6.2 cTJ -o cal of Mn(c)- .001 Tc (i)1.4 (ne)0.6 (S)3.3 (c)-2 (i74.5 (en)6.1 (c)-2 ((.)TJ 0 Tc 0 Tw1-1.25 0 Td ()Tj 0.001 Tc LiKa6e, LWler RL er, 2017 es (c)1 s(a)6.6 (s)-2(1)0.5 (S)34ab(1)05a(1)6)06 6(1)346 (s)029)0.5 iac41 (t)3.6 ()0.5 o(n)069 eyste. KaL i,seri,e, CLR 60.6 Vaeri,i,s, l. , L . ,

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and euphotic depths in south Florida coastal waters. *Remote Sensing of Environment*.
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2002

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- *Del Castillo, C., P. Coble, R. Conmy, F. E. Muller-Karger, L. Vanderbloemen, and G. Vargo. 2001. Multispectral in-situ measurements of organic matter and chlorophyll fluorescence in seawater: Documenting the intrusion of the Mississippi River Plume in the West Florida Shelf. *Limnology and Oceanography*. 46(7). 1836-1843.
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- *Goward S., Bindschadler R., Cahalan R., Flynn L., Goetz A., Moran S., Muller-Karger F., Palluconi F., Price J., Schott J., Thome K., Skole D., Vogelmann J., Woodcock C. (The Landsat Science Team) 2001. PHOTOGRAMMETRIC ENGINEERING AND REMOTE SENSING, Volume: 67, Issue: 8, Pages: 889-890. Published: AUG 2001.
- *Hu, Chuanmin, Frank E. Muller-Karger, Serge Andréfouët and Kendall L. Carder. 2001. Atmospheric correction and cross-calibration of LANDSAT-7/ETM+ imagery over aquatic environments: A multiplatform approach using SeaWiFS/MODIS, *Remote Sensing of Environment*, Volume 78, Issues 1-2, October 2001, Pages 99-107.
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1996

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*Muller-Karger, F. E., C. R. McClain, T. R. Fisher, W. E. Esaias, and R. Varela. 1989. Pigment distribution in the Caribbean Sea: Observations from Space. *Progress in Oceanography.* 23. 23-69.

*Walsh, J.J., C.P. McRoy, L.K. Coachman, J.J. Goering, J.J. Nihoul, T.E. Whitledge, T.H. Blackburn,