

BENJAMIN HOLT

Curriculum Vitae

Affiliation: Ocean Circulation and Air Sea Interaction Group, Earth Science Section
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Education

M.S., Physical Oceanography, Dept. of Geology, University of Southern California, 1988.
B.A., Human Biology and Anthropology, Stanford University, 1972.

Professional Experience

JPL, Physical Oceanography DAAC, Project Science Staff	2008 - 2018
JPL, Alaska SAR Facility Development Project, Task Scientist	1995 - 2002
JPL, Alaska SAR Facility, Deputy Task Scientist	1986 -1995
JPL Shuttle Imaging Radar Project, Ocean Science Experiment Rep.	1983 -1995
JPL, Research Scientist, Ocean-Ice Group	1982 - present
JPL, Member Technical Staff	1978 - 1982

Research Interests

- The geophysical state of polar sea ice and snow using multi-sensor remote sensing data and new instrument development and techniques for microwave measurement of sea ice thickness.
- Coastal oceanography circulation and the detection of marine pollutants using multi-sensor remote sensing data.

Synergistic Activities

- NASA NISAR Science Team Member
- Alaska Satellite Facility User Working Group (including former chair).
- Lead science advisor for the DEVELOP Program, Jet Propulsion Laboratory, supported by NASA's Applied Sciences Program to build capacity in both young researchers and partner organizations in the use of NASA Earth observations, 2009-present.

Data Products

Holt, B. (2019), *On-Ice Arctic Sea Ice Thickness Measurements by Auger, Core, and Electromagnetic Induction, from the Late 1800s Onward, Version 2*. Boulder, Colorado USA. NSIDC: National Snow and Ice Data Center. doi.org/10.7265/N58K7785.

Publications

- Qi, L., M. Wang, C. Hu, and **B. Holt** (2022), On the capacity of synthetic aperture radar in detecting floating macroalgae, *Remote Sensing of the Environment*, submitted.
- Jaruwatanadilok, S., X. Duan, **B. Holt**, and C. E. Jones (2022), A study of the sensitivity of SAR ocean backscatter to oil slick properties using an electromagnetic scattering model, *IEEE Trans. Geosci. Remote Sens.*, under revision.
- Cira, M., A. Bafna, C. M. Lee, Y. Kong, **B. Holt**, L. Ginger, K. Cawse-Nicholson, L. Rieves, and J. A. Jay (2022), Turbidity and Fecal Indicator Bacteria in Recreational Marine Waters Increase Following the 2018 Woolsey Fire, *Nature Scientific Reports*, 12:2428, doi.org/10.1038/s41598-022-05945.

- Sun, Z., plus others including **B. Holt** (2022), A review of Earth artificial intelligence, *Computers and Geosciences*, 159, doi.org/10.1016/j.cageo.2022.105034.
- De Laurentiis, L. C. E. Jones, **B. Holt**, G. Schiavon, and F. Del Frate (2021), Deep learning for mineral and biogenic oil slick classification with airborne synthetic aperture radar data, *IEEE Trans. Geosci. Remote Sens.*, 10.1109/TGRS.2020.3034722, 59(10).
- Ayad, M., J. Li, **B. Holt**, C. Lee (2020). Analysis and classification of stormwater and sewage runoff from the Tijuana River using remote sensing imagery, *Frontiers in Marine Science*, 8, doi: 10.3389/fenvs.2020.599030.
- Johansson, M. Espeseth, C. Brekke and **B. Holt** (2020), Can mineral oil slicks be distinguished from newly formed sea ice using synthetic aperture radar?, *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, 13, doi: 10.1109/JSTARS.2020.3017278.
- Espeseth, M., C.E. Jones, **B. Holt**, C. Brekke, S. Skrunes (2020), Quantitative measurements of oil slick evolution using a time series of SAR images, *J. Selected Topics in Applied Earth Obs. Remote Sens.*, 13, 10.1109/JSTARS.2020.3003686.
- Espeseth, M., C. Brekke, C.E. Jones, **B. Holt**, A. Freeman (2020), The impact of system noise in polarimetric SAR imagery on oil spill observations, *IEEE Trans. Geosci. Remote Sens.*, 2020, 10.1109/TGRS.2019.2961684.
- Garcia-Pineda, O., G. Staples, C.E. Jones, C. Hu, **B. Holt**, V. Kourafalou, G. Graettinger, L. DiPinto, E. Ramirez, D. Street, J. Cho, G. Swayze, S. Sun (2020), Classification of oil spill thicknesses using satellite remote sensing for oil spill response, *Remote Sensing of the Environment*, 236, doi.org/10.1016/j.rse.2019.111421.
- Rodriguez-Alvarez, N., **B. Holt**, S. Jaruwatanadilok, E. Podest, and K. Cavanaugh (2019), An Arctic Sea Ice Multi-Step Classification Based on GNSS-R Data from the TDS-1 Mission, *Remote Sensing of the Environment*, 230, doi.org/10.1016/j.rse.2019.05.021.
- Fichot, C. G., K. Matsumoto, **B. Holt**, M. M. Gierach, and K. S. Tokos (2019), Assessing change in the overturning behavior of the Laurentian Great Lakes using remotely sensed lake surface water temperatures, *Remote Sensing of the Environment*, 235, 10.1016/j.rse.2019.111427.
- Holt, B.** (2019), *On-Ice Arctic Sea Ice Thickness Measurements by Auger, Core, and Electromagnetic Induction, from the Late 1800s Onward, Version 2*. Boulder, Colorado USA. NSIDC: National Snow and Ice Data Center. doi: <https://doi.org/10.7265/N58K7785>.
- Thomson, J., plus others including **B. Holt** (2018), Overview of the Arctic sea state and boundary layer physics program, *J. Geophysical Res.*, doi:10.1002/2018JC013766.
- Tang, W., S. Yueh, D. Yang, A. Fore, A. Hayashi, T. Lee, S. Fournier and **B. Holt** (2018), The potential and challenges of using SMAP SSS to monitor Arctic Ocean freshwater changes, *Remote Sensing*, 10, 869, doi:10.3390/rs10060869.
- Ayoub, F., C.E. Jones, M.P. Lamb, **B. Holt**, J.B. Shaw, D. Mohrig, and W. Wagner (2018), Inferring surface currents within submerged, vegetated deltaic islands from multi-pass airborne SAR, *Remote Sensing of the Environment*, 212, 148-160, doi.org/10.1016/j.rse.2018.04.035.
- Skrunes, S., C. Brekke, C. E. Jones, M. M. Espeseth, and **B. Holt** (2018), Effect of wind direction and incidence angle on polarimetric SAR observations of slicked and unslicked sea surfaces. *Remote Sensing of the Environment*, 213, 73-91.
- Wadhams, P., G. Aulicino, F. Parmiggiani, P. O. G. Persson, and **B. Holt** (2018), Pancake ice thickness mapping in the Beaufort Sea from wave dispersion observed in SAR imagery, *J. Geophysical Research: Oceans*, 123, DOI 10.1002/2017JC013003.
- Angelliaume, S., P. Dubois-Fernandez, C.E. Jones, **B. Holt**, B. Minchew, E. Amri and V. Mieggebielle (2018), SAR imagery for detecting sea surface slicks: Performance assessment

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- Jones, C. E., and **B. Holt** (2018), Experimental L-band airborne SAR for oil spill response at sea and in coastal waters. *Sensors*, 18 (641), doi:10.3390/s18020641.
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- Alpers, W., **B. Holt**, and K. Zeng (2017), Discriminating oil spills from biogenic slicks by imaging radars: challenges and pitfalls: Challenges and pitfalls, *Remote Sensing of the Environment*, 201, 133-147, <http://dx.doi.org/10.1016/j.rse.2017.09.002>.
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