



RATNAKSHA LELE

PhD Candidate

[ratnaksha.github.io](https://github.com/ratnaksha) | rlele@ucsd.edu

EDUCATION

UC SAN DIEGO

PhD in Oceanography
Expected 2022

UC SAN DIEGO

Master of Science
Physical Oceanography
Dec 2018

VIT UNIVERSITY

Bachelor of Technology
Mechanical Engineering
June 2016

LINKS

Github:

[www.github.com/ratnaksha](https://github.com/ratnaksha)

LinkedIn:

www.linkedin.com/in/ratnakshalele

COURSEWORK

GRADUATE

ML for Physical Applications
Data Analysis Methods I, II & III
Geophysical Fluid Dynamics I & II
Applied Mathematics I, II & III

UNDERGRADUATE

Probability and Statistics
Computational Fluid Dynamics
Applied Numerical Methods
Operations Research

SKILLS

Over 5000 lines:

Python • MATLAB • C

ML frameworks:

Keras • Tensorflow • PyTorch

Familiar:

R • Julia • SQL

RESEARCH

SCRIPPS INSTITUTION OF OCEANOGRAPHY | PhD CANDIDATE

- Working with [Dr. Sarah Purkey](#) on quantifying the role of turbulent mixing in the global deep oceans from novel measurements from χ -pod turbulence profiler, critical for closure of the global deep ocean circulation.
- Blending machine learning algorithms with satellite measurements of changes Earth's gravitational field from [NASA GRACE](#) and [GRACE-FO](#) missions and ocean state estimate data from [NASA ECCO](#) and [SOSE](#) to reconstruct time series of global deep ocean mass transport.
- Studying temporal and spatial variability and trends in deep ocean mass transport and response to global anthropogenic climate change.

WOODS HOLE OCEANOGRAPHIC INSTITUTION | RESEARCH FELLOW

- Analyzed [Ice Tethered Profiler \(ITP\)](#) data from the Arctic.
- Calculated momentum and energy budgets for sea-ice to parameterize in climate models: published in *Elementa: Science of the Anthropocene*.
- Reconstructed Sea Surface Temperature (SST) variability in the Central Indian Ocean in the last 200 years from Ca/Sr and Ba/Sr paleoclimate proxies from drilled coral records and investigated the variability and teleconnection to the South Asian Winter monsoon.

INDIAN INSTITUTE OF SCIENCE | RESEARCH FELLOW

- Analysis of tropical hurricane and cyclone data from satellite observations and climate reanalysis data.
- R&D of new tropical cyclone detection and prediction algorithm for the Indian Subcontinent.

WORK EXPERIENCE

PhD CANDIDATE | SCRIPPS INSTITUTION OF OCEANOGRAPHY

Aug 2016 – Present | La Jolla, CA

RESEARCH FELLOW | WOODS HOLE OCEANOGRAPHIC INSTITUTION

June 2015 – April 2016 | Woods Hole, MA

RESEARCH FELLOW | INDIAN INSTITUTE OF SCIENCE

June 2014 – Aug 2014 | Bangalore, India

AWARDS

- 2020 NASA Future Investigator in Earth and Space Science Fellowship Grant
- 2020 NASA JPL Center for Climate Science Summer School
- 2017 Departmental Travel Award for Research Excellence
- 2016 UC San Diego Regents Fellowship
- 2016 VIT University Special Achiever Award
- 2015 Woods Hole Oceanographic Institution Summer Student Fellowship
- 2014 Indian Academy of Sciences Summer Research Fellowship

PUBLICATIONS

- [1] J D Nash, **R Lele**, J A MacKinnon, S G Purkey, et al. Estimating χ using fast-response thermistors on traditional shipboard CTDs: sources of uncertainty and bias. *Journal of Atmospheric and Oceanic Technology*, in prep.
- [2] **R Lele**, S G Purkey, J D Nash, J A MacKinnon, A M Thurnherr, C B Whalen, et al. Abyssal Mixing in the South West Pacific Basin. *Journal of Physical Oceanography*, in prep.
- [3] Sylvia T Cole, John M Toole, **Ratnaksha Lele**, Mary-Louise Timmermans, Shawn G Gallaher, Timothy P Stanton, William J Shaw, Byongjun Hwang, Ted Maksym, Jeremy P Wilkinson, et al. Ice and ocean velocity in the arctic marginal ice zone: Ice roughness and momentum transfer. *Elementa Science of the Anthropocene*, 5, 2017. [[pdf](#)].
- [4] **R Lele**. An investigation into arctic sea-ice dynamics and energetics. Report submitted in partial fulfillment of the WHOI Summer Student Fellowship, 2015.

CONFERENCE PRESENTATIONS

- R Lele et al, Abyssal Mixing in the South West Pacific Basin. Ocean Sciences Meeting, San Diego CA, Feb 2020, **Talk**.
- R Lele et al, Recipes of Turbulent Mixing from the South Pacific. Gordon Research Conference on Ocean Mixing, Andover NH, June 2018, **Poster**.
- R Lele et al, Decadal Changes in the Properties and Transport of AABW at 32oS in the Southwest Pacific Basin. Ocean Sciences Meeting, Portland OR, Feb 2018, **Talk**.
- R Lele and SG Purkey Antarctic Bottom Water Warming in the South West Pacific Basin. Graduate Climate Conference, Woods Hole MA, Nov 2017, **Poster**.
- R Lele et al, An Investigation into Arctic Sea-Ice Dynamics and Energetics. Ocean Sciences Meeting, New Orleans LA, Feb 2016, **Talk**.

TEACHING EXPERIENCE

Introduction to Physical Oceanography SIO-210	Teaching Assistant	Fall 2020
Introduction to Programming in C ITE-101	Teaching Assistant	Fall 2012

OCEANIC FIELDWORK EXPERIENCE

HLY-1803 Experiment in the Beaufort and Chukchi Seas	US Coast Guard Cutter Healy	Oct-Nov 2018
GO-SHIP P06 Leg-1 in the South Pacific	RVIB Nathaniel B. Palmer	Jul-Aug 2017
La Jolla Internal Tide Experiment	R/V Sally Ride	Dec 2016