Dean’s meeting with SOEST faculty 5/9/18

SOEST

providing science, technology and education to advance understanding of the ocean, Earth and planets...

... and

- solve energy and resource issues
- forecast our changing climate
- build and launch small satellites
- provide beach safety and vog alerts
- employ and train a high-tech workforce
- track sea level rise and coastal erosion
- preserve fisheries and coral reefs
- determine impacts of ocean acidification
Hokulea: Malama Honua

2017 Voyaging into History

Hawaiian Airlines celebrates the voyaging spirit of the great Pacific wayfinders who came before us — a spirit shared today by the Polynesian Voyaging Society and the Malama Honua Worldwide Voyage of the Hokulea.

2017 Voyaging into History

Hawaii is a traditional Polynesian voyaging canoe visiting around the world with a message of environmental sustainability.

Cone Model - Constructed by crew members, including land navigators Maui and Pili during one of the Society’s first voyages to Tikopia in 1975.

Tapa - Brief used in the preparation and serving of food for ceremonies and social occasions.

Te Kahu - A magical creature that represents the spirit of the ocean and the land's connection to the ancestors.

Tangaroa - Created 30 years ago in New Zealand, this is a marae with Maori carvings and is believed to have spiritual and protective powers.
PacIOOS 10 years
FKD Memorial Poker Tournament
Hawaiian-language newspapers illuminate a 1871 hurricane

Businger, Nogelmeier, Chinn & Shroeder, AMS 2018

“...It started lightly raining from yesterday morning, followed by the gusting winds from the North and Northeast; until the early afternoon, when the wind became really strong, and all of the breadfruits, coconuts, and other plants were destroyed, broken in the roadway. The streaming of the wind was similar to 5000 steam whistles set off at one time. The rain continued from morning till night. At 11 ‘o clock, the waters rushed swiftly and the lowlands were flooded, sweeping everything that was in their paths. The damages were great concerning the koa trees and the grapevines. On Thursday, the wind lessened, and it seemed to be veering from the North towards the Southeast and it calmed down by 5 o’clock in the evening.”

Ke Au Okoa published on 24 Aug 1871, with English translation.
BREAKING NEWS
RESIDENTS EVACUATING FROM LEILANI ESTATES
ABOUT 10,000 RESIDENTS LIVE IN AREA
New SOEST TT Faculty

Matthieu Dubarry
HNEI  Aug. 17

Nicolas Gaillard
HNEI  Aug. 17

Kiana Frank
PBRC  Sept. 17

Niels Grobbe
HIGP/WRRC  Nov. 17

Lars Bejder
HIMB  Jan. 18

Chris Sabine
OCE  Jan. 18

Phil Thompson
OCE  Feb. 18

Josh & Liz Madin
HIMB  May 18

Tom Shea
G&G  July 18

Angelique White
OCE  July 18

Justin Stopa
ORE  Aug. 18

Nicole Hynson
PBRC  Aug. 18

Giuseppe Torri
ATM  Aug. 18
Steve Karl, RIP

Flo Thomas
Dixie Blanchard
Eric DeCarlo
Frank Sansone

Jay Griffin => PUC
Jennie Potter => PUC

Janet Becker => Scripps
Mark Merrifield => Scripps
Olivier Rouxel => IFREMER
SOEST Faculty Recognition

Bo Qiu  April 2018
BOR Excellence in Research Award

Murli Manghnani  Dec. 2017
AGU Fellow

Margaret McFall-Ngai  Dec. 2017
Howard Hughes Medical Inst. Professor

Bruce Houghton  Aug. 2017
IAVCEI Thorarinsson Medal

Sebastien Biass  Aug. 2017
IAVCEI George Walker Medal
SOEST Faculty Recognition

Don Thomas  Feb. 2018
Western States Seismic Policy Council Lifetime Achievement Award

Nicole Lautze  Nov. 2017
Clean Energy Education & Empowerment Award

Sasha Krot  June 2017
Humboldt Research Award

Sonya Rowling  Nov. 2016
Sir David Attenborough Award
2018 Promotion & Tenure
all positive recommendations

ATMO: Jennifer Griswold I4

OCE: Anna Neuheimer I4
    Michael Guidry S4
    Brian Powell I5

HIMB: Megan Donahue R5
    Carl Meyer R4
    Judy Lemus S5

SeaGr: Ruby Pap A4
New EXCOM Members
Niklas Schneider OCE July 17
Doug Luther JIMAR Sept. 17
Rob Wright iHIGP Sept. 17
Anita Lopez DRVO Feb 18
Paul Wessel G&G July 18

Recommended Department name change: G&G => Earth Sciences
Bob Richmond (PBRC) appointed to NAS committee to explore interventions to save coral reefs

Healthy reefs in 2014 (left) had lost their colour in 2015 (right)

Chip Fletcher, Rosie Alegado, Makena Coffman appointed to HNL Climate Change Commission
Hawai‘i Climate Change Mitigation & Adaptation Commission: SLR Report

Sea Grant
King Tides Project
Most atolls will be uninhabitable by the mid-21st century because of sea-level rise exacerbating wave-driven flooding


A newly discovered bacterium secretes an enzyme that digests plastic (PET). Austin further engineered this enzyme for improved PET biodegradation. (synthetic biology)
Greenhouse-gas emissions could take many paths in the coming years, resulting in differing levels of warming relative to pre-industrial levels. Thanks to policies that have already been implemented by governments around the world, temperatures are not expected to rise as high by 2100 as they otherwise would. But to achieve the 1.5 °C and 2 °C targets set by the 2015 Paris climate accord, more-aggressive emissions reductions will be needed.

**THE BIG CONTRIBUTORS**
A fairly small number of countries are responsible for the bulk of CO₂ released annually. But emissions from the rest of the world are on the rise.

- India
- European Union
- United States
- China
- All others

**15 GtCO₂***

**THE SCALE OF THINGS**
Global energy consumption is still dominated by fossil fuels. A small fluctuation in coal use from one year to the next can wipe out a seemingly dramatic expansion in renewable energy.

* Gigatones of carbon dioxide
** Gigatones oil equivalent
Greenhouse-gas emissions could take many paths in the coming years, resulting in differing levels of warming relative to pre-industrial levels. Thanks to policies that have already been implemented by governments around the world, temperatures are not expected to rise as high by 2100 as they otherwise would. But to achieve the 1.5 °C and 2 °C targets set by the 2015 Paris climate accord, more-aggressive emissions reductions will be needed.

The pace of past energy transitions suggests that a full-scale shift to renewables will be slow.

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Marine Facilities
Lu’ukai
Coconut Island
Marine Center
KOK
Pisces IV & V
Developing and field testing new technologies

- Keck-supported Hadal Profiler

- NASA-supported spectral remote sensing, lidar fluorescence & Raman spectrometry instruments

- NSF-supported Long-Range AUVs for autonomous environmental & microbial monitoring and sampling (with MBARI)

- NASA- and DoD-supported satellite testing, integration and launch facilities of the HSFL.
SOEST faculty are leading or co-leading the four largest UH Manoa 2018-2019 strategic initiatives:

- C-MAIKI
- SMART Ala Wai
- Material Sciences
- Data & Computational Sciences
Center for Microbiome Analysis through Island Knowledge and Investigation (C-MAIKI): Margaret McFall-Ngai, Nicole Hynson, Kiana Frank, Rosie Alegado, Andrea Jani, Matt Medeiros, Craig Nelson, Olivia Nigro, Joanne Yew + CNS (Botany, Math), CTAHR (PEPS, TPSS), M.ENG
Strategic Monitoring And Resilience Training in the Ala Wai Watershed: SMART Ala Wai


+ COE, CSS, CTAHR, ENG

Water quality monitoring & sampling network and a data dissemination & outreach plan
Hawaii Institute for Data & Computation
Jason Leigh, Gwen Jacobs, Mahdi Belcaid

Data & Computational Science:
including data analytics, high performance computing, security and data-driven research and decision making.

The proposal was co-developed by a diverse group of faculty including:
ICS: Scott Robertson, Guylaine Poisson, Lipyeow Lim, Susanne Still, CoE: Marcelo Kobayashi, David Ma, Math: Monique Chyba, Ralph Freese, Yui Mileyko, Bjoern Kjos-Hanssen
Business: Anthony Vance, Pedro Villarreal, Wei (Victor) Huang
UH Materials Science Consortium for Research and Education

Nicolas Gaillard (HNEI), Hope Ishii (HIGP), Matthieu Dubarry (HNEI), Joe Brown (MEng), Sangwoo Shin (MEng), Przemyslaw Dera (HIGP), Klaus Sattler (Physics), Craig Jensen (Chemistry), Mehrdad Ghasemi-Nejhad (MEng) and Murli Manghnani (HIGP).

Synthesis of advanced materials and state-of-the-art analytical capabilities down to atomic resolution, including aberration-corrected transmission electron microscopy, scanning tunneling microscopy, focused ion beam microscopy, time-of-flight mass spectrometry, nuclear magnetic resonance spectroscopy, optical spectroscopies (Raman and Brillouin scattering) and advanced X-ray diffraction, for renewable energy generation and storage technologies, as well as carbon-based nanomaterials.
SOEST Strategic Planning – start by unit
Earth Ocean Atmosphere Climate
Planets Ecosystems Energy
Science & Technology
Education, Research & Development
Remote sensing,
in situ observations,
lab-based analyses,
instrumentation development,
visualization, modeling & forecasting
of the Environment