

# Celebrating the life and legacy of



**Professor Dr. Klaus Wyrтки**  
1925-2013

*“We always think of science as a precise process of theory and experiment, but we often forget that without imagination, intuition, and a little luck, no real progress would be made. We tend to forget that science is also a kind of art, propelled by ideas as much as by logic. And from this point of view I am very pleased about being the recipient of this prestigious award.*

*Last but not least, I like to thank mother nature, who has been offering me all these opportunities to learn, and I must say that I am always a little glad if theories and predictions do not turn out to be totally correct, because it convinces me that mother nature knows more than we do.”*

-Klaus Wyrтки, in his response when awarded the 1989 Maurice Ewing Medal from the American Geophysical Union and the United States Navy, for leadership in marine geophysics.

Professor Dr. Klaus Wyrski  
Mentor, Colleague and Friend

**Order of Service**  
**April 8, 2013**

- 5:00 pm Gathering and light refreshments  
5:30 pm Blessing of the Symposium  
by Kahu Curtis Kekuna, Kawaiaha`o Church  
5:35 pm About Klaus  
6:15 pm Open microphone  
6:45 pm Pupu and `aha inu  
7:45 pm Closing

**Celebration of the Legacy of Prof. Klaus Wyrтки**  
**Ocean Physicist, Keen Observer and Leader**  
**April 9, 2013**  
**Asia Room, East-West Center**

8:15am Coffee

**8:45-9:00 Opening:** Roger Lukas (U. Hawaii/SOEST/Oceanography)

<Morning Session – Tom Schroeder, Chair>

**The life of Klaus Wyrтки**

9:00-9:20 Gisela Speidel (U. Hawaii/SOEST/IPRC) – “Klaus Wyrтки and the Three-Dimensional Pictures of the Ocean Circulation”

**Klaus’ role in shaping our department**

9:20-9:35 David Karl (U. Hawaii/SOEST/Oceanography) – “Klaus Wyrтки: Departmental scholarship”

**Klaus as an educator**

9:35-9:50 Les Uhrich (Pierce College)

**Klaus’ early days in the Atlantic**

9:50-10:10 William J. Emery (U. Colorado) – “The Meteor Expedition, its role in early German Physical Oceanography which led to Klaus’s entry into the field”

10:10-10:30 Coffee Break

**In between two homes: The Indonesian Throughflow**

10:30-10:50 Jim Potemra (U. Hawaii/SOEST/HIGP) – “Klaus Wyrтки’s work on the Indonesian Throughflow: Connecting oceans, countries, and generations”

10:50-11:10 Dongchull Jeon (Korea Ocean Research and Development Institute) - “Westward intrusion of South Pacific waters at the western tip of New Guinea Island”

**Klaus and the Hawaiian Islands**

11:10-11:30: Doug Luther (U. Hawaii/SOEST/Oceanography) – “Local Current Observations: Food for Many Thoughts”

11:30-11:50: Pierre Flament (U. Hawaii/SOEST/Oceanography) – “Atmospheric and Oceanic Flows in the Lee of Hawaii”

Discussion 11:50 – 12:15

**12:15-1:30 Lunch (Makana Garden Room, East-West Center)**

1 pm Lunch Time keynote: Tom Schroeder (U. Hawaii/SOEST/Meteorology) – “Klaus and El Niño prediction”

<Afternoon Session I – William Emery, Chair>

**Klaus and the Deep Ocean**

1:30-1:45: Roger Lukas (U. Hawaii/SOEST/Oceanography) – “Abyssal Circulation and Ventilation of Deep Ocean Basins”

1:45-2:05 Julian McCreary (U. Hawaii/SOEST/Oceanography) – “Oxygen minimum zone discoveries”

**Klaus’ encounters with Ocean Jets**

2:05-2:25: Eric Firing (U. Hawaii/SOEST/Oceanography) – “Resolving Equatorial Circulation in Time and Space”

2:25-2:40 Bo Qiu (U. Hawaii/SOEST/Oceanography) – "The North Equatorial Undercurrent jets – Addressing Klaus' questions from 1982"

**Klaus’ quest to understand sea level variations: Building and extending networks**

2:40-3:00: Gary Mitchum (U. South Florida) – “Suggestions from Klaus = Career in Oceanography”

3:00-3:20: Mark Merrifield (U. Hawaii/SOEST/Oceanography) – “Sea Level Observations and Interpretations: Lessons from Klaus”

3:20-3:40 **Break**

<Afternoon Session II – Jim Potemra, Chair>

**On Sea Level, heat content, Kelvin waves and El Niño**

3:40-4:00: James J. O’Brien (Florida State University/Meteorology and Oceanography) – "The observer and the modeler, a union for knowledge"

4:00-4:20: Dennis Moore (NOAA/PMEL) – "Reflections of an Equatorial Oceanographer - How Klaus Wyrтки got me to come to Hawaii"

4:20-4:40: Toshio Yamagata (The University of Tokyo) – "The Indo-Pacific Heritage of Prof. Klaus Wyrтки"

**Discussion** – moderator, Niklas Schneider (U. Hawaii/SOEST/Oceanography)  
4:40-5:20

**Closing**

5:20-5:30 Axel Timmermann (U. Hawaii/SOEST/Oceanography)

## Quotes about Klaus

*I am so sad to hear that Klaus has passed away. He had a tremendous influence on me. He was a great oceanographer. Beyond that he had a great insight into things in general, and you had to pay attention to his views. – Gary Meyers, CSIRO, Australia*

---

*As Bill Patzert is well aware I was a bit of an experiment of Klaus's hiring me as an undergraduate to work on some cruises in the islands. In the fall of 1966 I was taking my first oceanography class taught by a geologist. After class one day I told him I would like to learn more about physical oceanography. He immediately took me over to the Hawaii Inst. of Geophysics building and I waited outside an office on the third floor. The next thing that happened was a stocky, bald man with large glasses emerged and said "vell you vant to go to sea." That was the start of my oceanographic career. I have a lot of these stories as I am sure we all do. We have lost a mentor and a great friend. He was a real pioneer in the analysis of oceanographic data which is a rapidly vanishing skill these days. – William J. Emery, University of Colorado*

---

*I am deeply saddened. Klaus was a lovely man. He had a huge impact on my life and career. Klaus was a kind, generous man and great company. He loved a good party. I remember our time in graduate school fondly. For me, it was one of the golden periods of my life. A portion of him still lives in each of us. – William C. Patzert, NASA/Jet Propulsion Laboratory*

---

*Klaus was one of the greats. My personal connection with Klaus via our advisor, Georg Wust, makes me think of Klaus as a relative. – Arnold Gordon, Columbia University/LDEO*

---

*We lost a giant. I shall miss him. – David Halpern, NASA/Jet Propulsion Laboratory*

---

*Now there was a great man. His legacies will endure for many years. – Neville Smith, Bureau of Meteorology, Australia*

*Although I cannot say that Klaus and I were close, I have known him since the earliest days of my career (1970s) when he influenced my thinking about Pacific Ocean climate and he was to a great extent determinant in the direction my career took. We kept meeting each other at TOGA meetings and before that in NORPAX, EPOCS, PEQUOD and such, programs for which he was a guiding influence. To me he was “Dr. Nino” (that is, Nino without the dot). He will be missed, no doubt. – David Enfield, NOAA/AOML*

---

*I am very sorry to hear our great loss. Just yesterday, on our national holiday, I ... found a letter from Klaus dated on July 21, 1981 just prior to joining GFD program of PU, which encouraged me a lot. The letter has been so precious to me and I just kept it with remembering his smile. – Toshio Yamagata, University of Tokyo*

---

*He was an amazing scientist and wonderful person.*  
– Michael Garcia, SOEST/University of Hawaii

---

*Sorry to hear that Klaus has passed. He was a visionary and keen scientist. We all benefited from his insight and encouragement.*  
– David Legler, NOAA/Climate Program Office

---

*Thank you Roger for your mail concerning Klaus. You knew I appreciated very much Klaus as a colleague and a friend.*  
– Jean-René Donguy, IFREMER, France

---

*Thank you for sending the message on Klaus Wyrтки. I was very sorry to learn that he passed away, and I want to offer my condolences to SOEST. Not everyone will be aware of the fact that Klaus linked up the University of Hawaii and the University of Kiel where he received his PhD and worked as a Postdoc for some time before moving off into the Pacific region. I met him fairly often at various places and meetings, and I always enjoyed seeing him when I stayed at UH. He impressed by his personality and by his open-minded view of the ocean. His ideas and results influenced many people in the field, in physical oceanography and in other disciplines. It was good to have him as a colleague and friend. – Gerold Siedler, University of Kiel*

*Klaus was a very great oceanographer indeed but perhaps more important he was a passionate man in terms of his feelings for his fellow man. He was one who always stated his mind and was objective on issues, and all the faculty valued highly his opinion. When you were still a student and I came to UH, Klaus was one of the faculty who went out of his way to welcome me. I have never forgotten that and he and I remained close friends from that time on.*

– **Fred Mackenzie, SOEST/University of Hawaii**

---

*I experienced first hand the advice and guidance of Klaus when I was Chairman of IGOSS in the early eighties. The Commission was struggling with the establishment of real-time oceanography at the time and, with Klaus's help we introduced the IGOSS Sea Level Pilot Project, ISLPP, distributing the results of the sea level fluctuations in the Pacific in near real time. Klaus had already demonstrated the importance of these measurements to the prediction of climate related phenomena. ISLPP was a forerunner to the establishment of the IOC Working Group IGOSS. Although the many achievements of Klaus Wyrтки may overshadow this minor event, I shall always remember the friendship and kindness which he showed me those many years ago. I send my sympathy and best wishes to his family, friends and colleagues.*

– **Geoffrey Holland, ex Chair, IGOSS/IOC**

---

*I was fortunate to take one of Klaus's courses (OCN 640) and attend his seminars. His great intuition and insight were unsurpassed. He was a rare genius in the field of oceanography.*

– **Dailin Wang, NOAA/Pacific Tsunami Warning Center**

---

*Klaus was really a character in oceanography, an example for young (and I was once one of them) as well as for senior oceanographers. I'm sure his articles will remain cited for numerous decades.*

– **Thierry Delcroix, CNRS/LEGOS, France**

---

*His work was inspirational and I am fortunate to have known him.*

– **Allan Clarke, Florida State University**

---

*Klaus was very special.*

– **Rana Fine, RSMAS/University of Miami**



*I'm deeply saddened by the passing of Klaus Wyrcki. I've never met him, but I'm familiar with his work, especially his discovery of the Wyrcki Jets. Because of DYNAMO, I became very interested in interactions between the MJO and Wyrcki jets. ... Please pass my condolence to Prof. Wyrcki's family.*

– **Chidong Zhang, U. Miami/RSMAS**

---

*Thanks for transmitting the sad news about Klaus. That hurts like losing one of our family - he will be missed. Full of imperfections like the rest of us, but kind, giving and rife with thoughtful, insightful lessons shared honestly and generously with so many of us.*

– **George Parrish, EPA/Water Quality Unit**

---

*After the first session of the IOC Group of Experts on GLOSS, held at the Proudman Oceanographic Laboratory in June 1989, I took Klaus to Liverpool airport. He was enroute to some African and Indian Ocean states and had tide gauge batteries in his luggage, which made the security check interesting! He had a multiple ticket for all his destinations and the check-in guy remarked that it was going to be a great holiday. But Klaus told him that it wasn't a holiday, he was on business. When asked what business, he said, with emphasis: I am an oceanographer. The check-in guy, said: Wow, I'd love to be an oceanographer!* – **Graham Alcock, NOC/POL**

---

*A true giant has been lost.*

– **Antonio Busalacchi, ESSIC/University of Maryland**

---

*My heartfelt condolence to his bereaved family. He was very fatherly to me. I owe him a lot. I shall truly miss him.*

– **Rex Baleña, University of the Philippines Visaya**

---

*Klaus will be missed by all of us.* – **Otis Brown, NOAA/NCDC**

---

*It is sad news indeed. Especially for those who have learned a lot from him, like myself. It strikes me that he did pioneering work in many fields of research that are still addressed in our laboratory now, be it ENSO, upwelling systems or Indian ocean variability.*

– **Gérard Eldin, CNRS/LEGOS, France**

*Klaus was definitively a fabulous and enthusiast scientist but he was also a wonderful man full of joy and very pleasant.*

– **Joël Picaut, IFREMER, France**

---

*I miss Professor Wyrcki very much and I regret that I didn't reach him, while he was here in this world, and say thanks for his education for us.* – **Jae-Yul Yun, Seoul National University, Korea**

---

*Klaus has played a very important role in our understanding of Pacific Ocean circulation. I was fortunate to work with Klaus when I was a program manager at the National Science Foundation in the 1970s/80s. He played a key role in the NORPAX program by analyses of large scale data sets, documenting the structure of equatorial circulation, using tide stations for monitoring large scale flows, and providing leadership for the program. I have fond memories of the representing the US with Klaus and Brackett Hersey at an IOC regional Pacific meeting in Tokyo.*

– **Curtis Collins, Naval Postgraduate School**

---

*A great loss indeed. Although I knew Klaus by name before I came to Hawaii, I was very impressed when I met him and heard him speak at Faculty meetings and then later socially. He made enormous contributions to our understanding of ocean physics and climate interactions.* – **Chris Measures, SOEST/University of Hawaii**

---

*Your information on Klaus' death has deeply touched myself, my colleagues, my family. During my frequent stays on Hawaii we met again and again and became friends with him and Erika. I consider Klaus as one of the last great classical oceanographers with a sure sense of the fundamental phenomena and connections within the atmosphere-ocean system. We are proud in Germany that he is prize-holder of the Albert Defant Medal. I always appreciated his talent to enjoy besides his scientific work the beauty of the Hawaiian Islands. Let us be thankful for the common time with a great man.*

*With sympathy*

– **Jürgen Sündermann, ZMAW/University of Hamburg**

## David Halpern Observations of Klaus Wyrcki

*Dear Erika, Oliver, and Undine.  
Friends and colleagues of Klaus.  
Distinguished guests.*

*Klaus Wyrcki was an amazing man who lived in a remarkable time in history. This was a time when governments supported smart people with a passion for discovery, especially when it involved the largely unexplored oceans. Klaus was a discoverer of new knowledge of the oceans. Everywhere he went the ocean yielded secrets to him. He had a wonderful way to explain the mystery of the ocean so everyone learned something new.*

*I met Klaus at a NORPAX planning meeting on the Oregon coast in about 1976. NORPAX was the North Pacific Experiment and already was an established program in the North Pacific. Klaus, as the scientific director of NORPAX, was going to expand NORPAX into the tropics, including the South Pacific. One of Klaus' greatest attributes was: don't worry about the small stuff. Therefore, he decided to leave the name NORPAX but work in the South Pacific. In one of life's interesting happenings, I, a young scientist, was fortunate to sit next to Klaus at dinner one night. He told many stories of his stay in Indonesia, and I realized then that he is an interesting person.*

*Shortly afterwards, I seized the opportunity to join the NORPAX leadership team directed by Klaus. Klaus was building support for his famous Tahiti-to-Hawaii Shuttle Experiment to capture an annual cycle snapshot of oceanographic conditions. His effort to build support for NORPAX had no limits. At that time NOAA was building the EPOCS program near 110°W to also study dynamics of the equatorial Pacific Ocean. Klaus asked NOAA to move their resources to the NORPAX region near 155°W, but NOAA thought it would be best to have EPOCS and NORPAX operate simultaneously. The two programs working together recorded the first observations of many phenomena, such as a Kelvin wave propagating eastward in the Equatorial Undercurrent over a distance of 4500 kilometers. Klaus, who did not believe that moored current measurements were necessary, was a gentleman and agreed to include this technology in NORPAX. He also did not think that surface moorings would stay where they were placed and if they did survive then no meaningful data would be recorded. Many shared this idea because major oceanographic institutions had failed to make long period current measurements at the equator.*

*Several years after NORPAX had finished, Klaus said that I made him a believer in equatorial current measurements.*

*In 1978, Klaus led a small delegation to the Soviet Union to discuss climate programs. I was fortunate to be a member of Klaus' delegation. I shall always remember Klaus vetoing the Soviet invitation to meet in Novosibirsk in the middle of winter. He said May or June, and we went at the end of May. It was clear to me that Klaus had no intention to substitute wintertime Hawaiian weather with wintertime Siberian weather, even for a week. Klaus unknowingly taught me a lesson. No matter how important or influential the other side is, do what you think is best. This lesson served me well when, many years later, I spent some time at the White House Office of Science and Technology Policy.*

*Klaus, an outstanding sea-going oceanographer, saw the future of oceanography in satellites. Klaus was an influential member of the first TOPEX Science Working Group, which wrote the seminal report to set NASA on a path to fly the TOPEX satellite. Many of you know that TOPEX was followed by Jason and then Jason-2. Jason-3 is expected to launch in 2015. Then the satellite research measurement of sea level will become an operational measurement. This outstanding accomplishment for oceanography is based in part on Klaus's pioneering work on sea level dynamics and the El Niño and La Niña phenomena. The other day I was looking at the report of the first TOPEX Science Working Group, which was published in March 1981. I noticed Klaus' handiwork on two of the three examples of oceanographic experiments. He wrote the section on the global sea level network. In the section on the equatorial region, which we wrote together, he encouraged me to include some new data that I had recently acquired.*

*I would like to conclude my remarks with some random observations of how I remember Klaus. I vividly see Klaus and Erika jogging on the beach on the north shore of Oahu during a NORPAX meeting. I vividly see Klaus in a tuxedo and Erika in a beautiful gown waltzing at a conference banquet in Vienna. I vividly see Klaus and Erika in their wonderful home high above Honolulu.*

*Klaus taught me to live life to the fullest. I am still learning.*

*Thank you.*

*Klaus is among the few moderns in the Pantheon of observational oceanography with those from the legendary voyages of exploration of earlier eras. He was an incisive thinker and most of all, I admire his intellectual risk-taking. He was willing to make great leaps to fill in data gaps so great as to discourage most of us from even trying. He had an astonishing ability to land in the right place, as unlikely as success might seem to we more hidebound mortals. These leaps were both conceptual and logistical; he pulled off field programs that few would have attempted.*

*Klaus made my career. He told me, with great certainty, that Bjerknes had the answer to ENSO. At the time there were many other ways to think about El Niño but he was right of course. Fortunately, I had the good sense to listen to him. His own heroic work in deploying tide gauges around the Pacific completed the picture. It was especially important in turning attention from SST to sea level/heat content, a wind-driven dynamical variable in place of one affected by too many things (thermodynamics, dynamics, mixing) to sort out.*

*One final thing. When Sarachik and I (finally) got our book out, I revisited all the ENSO theories to write Chapter 7 and concluded that the paper that had it most right was Wyrтки (1985). As explained in the book, it is closer to the truth than Cane and Zebiak (1985) or the delayed oscillator papers or the recharge-discharge. Klaus had an uncanny feel for how the ocean works. This is not supernatural, but a result of his immersion in the observations and a grasp of theory and how it applies.*

*Klaus is my hero. I am deeply sorry to miss this.*

**– Mark Cane, Columbia University**

---

*As students with Klaus, we enjoyed the golden age of oceanography, where our curiosity could be stoked with all the new observations. In some ways, we were like children at Christmas, tearing the wrapping off to see what was inside. Not only was he Santa, but he showed us how to open the gifts. – Roger Lukas, SOEST/University of Hawaii*

