

# **HPWREN LIVE**

## **Live Interactive Virtual Explorations**

**Exploration and understanding  
of hard-to-reach science and  
history sites**

**Preparation for fieldtrips  
to such sites**

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**2002-2012**

**Kimberly Mann Bruch**

2002

## Pala Learning Center: HPWREN Multicast Class



HPWREN, Palomar College, and Tribal Digital Village Network (TDVNet) offer a Computer Science and Information Systems course at the Pala Learning Center for Pala, La Jolla, Rincon, and San Pasqual Native Americans.

Experiments with vic (multicast tool) and rat (audio tool) were also utilized for occasional remote classroom sessions via HPWREN.

2003

## Anza Borrego Desert: Remote Teacher Tour



Teachers attending the National Teacher Training Institute Conference in Irvine participated in an underwater tour of Crystal Cove State Park and examined fossilized oyster beds in nearby Fish Creek

(The remote Fish Creek is approximately 100 miles from Irvine.)

# 2006

## Tests Resume: CA Wolf Center, Cabrillo National Monument, and CA Science Center



Experiments at California Wolf Center test Skype with PDA and then laptop. The team discovers that a backpack equipped with a laptop running Skype (and transmitting images via DV camera) produce the best results.

Backpack system replicated and used for experiments between Cabrillo and California Science Center. Also experimented with Remotely Operated Underwater Vehicle (ROV).

# 2007

## Pala Even Start Tours Palomar Observatory and Santa Margarita Ecological Reserve via HPWREN LIVE



Pala Little Feathers and Adult Education (Even Start) students participated in a LIVE activity between the Admin Building and Santa Margarita Ecological Reserve as well as the Palomar Observatory.

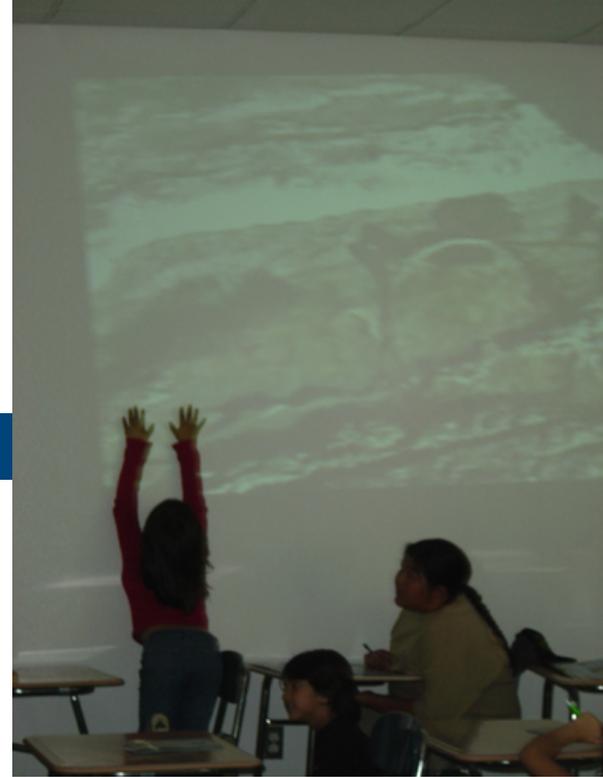
Additional HPWREN LIVE activities included demos at the NSF booth during the AAAS meeting as well as demos at a San Diego Youth Science Fair.

2008

## HPWREN LIVE Pilot Activities

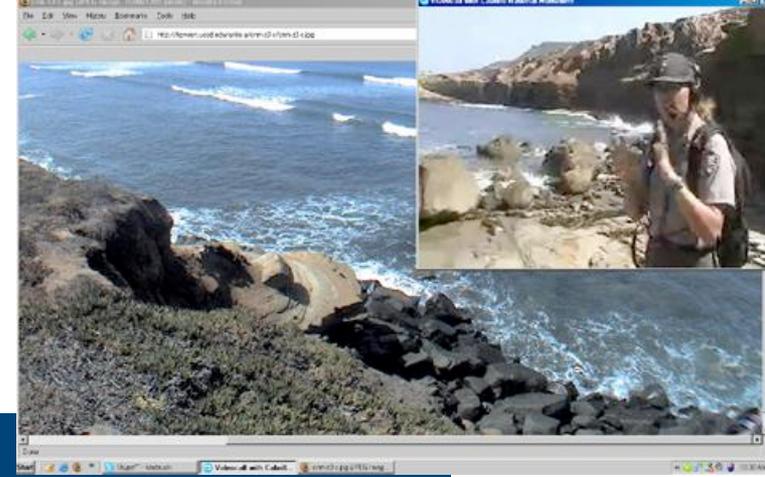
Two activities between Pala youth programs and Cabrillo tidepools. Activities included on-site geologist and hands-on activities with southern California shells.

Reuben H. Fleet Science Center's Astronomy Day 2008 included an HPWREN LIVE demo - featuring the telescopes at Palomar Observatory.



# 2008

## HPWREN LIVE Pilot Activities



Activities included:

- Women in Science Summer Camp at Reuben H Fleet Science Center (Cabrillo LIVE)
- National Geographic Bioblitz Species Inventory (Santa Monica Mountains)
- Experiments with Off-Shore ROVE, Rural Science Class, and SDSC Building Dedication Demos
- National Park Service Workshop at Cabrillo for 35 Rangers from USA Parks

2009

## HPWREN LIVE Pilot Activities



Activities included:

- Green Day and NanoDay at Reuben H Fleet Science Center (SMER and UCSD JSOE)
- George Wright Society Conference (Portland)
- National Association for Interpretation Conference (Hartford)
- Demos with Palomar Observatory, Cabrillo intertidal area, Birch Aquarium, SMER, and CA Wolf Center

# 2010

## HPWREN LIVE Pilot Activities



Activities included:

- AAAS Family Science Days & TeacherTECH LIVE
- Old Point Loma Lighthouse Demos
- HACU Conference (San Diego)
- Dept of Interior Diversity Days (Washington, DC)
- Published text book chapter and journal article
- Sustainability Strategy

# 2011



## HPWREN LIVE Pilot Activities

Activities included:

- NPS National Leadership Council
- Old Point Loma Lighthouse Demos
- San Juan Capistrano School District Demos
- NPS LIVE StSS Workshop
- Published journal article
- Sustainability Strategy

2012



## HPWREN LIVE Pilot Activities

Activities include:

- California Wolf Center
- Point Loma Tidepools
- Guadalupe Mountains
- Published journal article
- Sustainability Strategy



## Peer-Reviewed Publications Regarding LIVE



### LIVE Textbook Chapter and Journal Articles

- Bruch, K. M., Braun, H-W., Teel, S. (2010). Live Interactive Virtual Explorations via the High Performance Wireless Research and Education Network. In S. Mukerji (Ed.), Cases on Technological Adaptability and Transnational Learning: Issues and Challenges. Pennsylvania: IGI Global.
- Bruch, K. M., Braun, H-W., Teel, S. (2010). Live Interactive Virtual Explorations at a Southern California Native American Learning Center: Case Studies and Lessons Learned. Journal of Cases on Information Technology. Pennsylvania: IGI Global.
- Bruch, K. M., Braun, H-W., Teel, S. (2011). Evaluating the Effectiveness of Live Interactive Virtual Explorations Involving a Hard-to-Reach Native American Earth Lodge and a Pacific Island Volcanoes Site. Journal of Interpretation Research.
- Bruch, K. M., Braun, H-W., Teel, S. (2012). Live Interactive Virtual Explorations Provide Students with Glimpse of Life at Old Point Loma Lighthouse in the late 1800s. Park Science.

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# Let the Exploration Begin!

