

**Teacher Training through Hands-On and Excursion-Based Activities in Aerospace Science:
A Mathematics and Science Partnership between the Windward District and Windward Community College**

**No Child Left Behind Workshop
January 2009 – January 2010
Event 2847**

Program Coordinator
Joseph Ciotti Director
WCC Center for Aerospace Education

Assistant Coordinator
Karen Frato-Hidebrant
Kailua Intermediate School

Jan 21 (Sat) Orientation Workshop: 8:30 – 11:30 am at WCC campus.

- Overview of NCLB
- "Getting to Know You": introducing coordinators and participants
- PDERI Requirement (min 60 hrs + portfolio)
- Library Unit in Search Engines: **Tara Severns**

Feb 9-10 (Mon-Tues) Professional Learning Communities (PLC) Conference:
at the Hawai'i Convention Center.

Preparatory Workshop: Saturday, May 16, 2009 from 8:30 – 11:30 am at WCC campus.

- Summer Workshop: 7-day summer workshop from June 11-19, 2009.
 - Jun 11, 12, 16, 17 at WCC campus from 8:30 am – 3:00 pm
 - Mon Jun 15 at the Pacific Aviation Museum—Pearl Harbor from 8:30 am – 12 noon ;
from 1:00 – 3 :00 pm at Bishop Museum
 - Thurs/Fri Jun 18 & 19 on the Big Island (Mauna Kea Observatories, 'Imiloa Astronomy Center and Volcanoes National Park).
- Implementation of Lesson Plans: Fall semester 2009 (includes a field excursion)
at individual K-12 schools

FOLLOW-UP ACTIVITY (for participants earning Professional Development credit)

- Portfolio Due Date: Friday, December 12, 2009
- Follow-Up Workshop: Fri, December 12, 2009 from 8:30 am – 2:30 pm at Kailua Intermediate School
- Official Course End Date: January, 6, 2010

Summer Workshop Schedule

Thurs – Wed, June 11 – 17 on O‘ahu (8:30 am – 3:30 pm)

June 11 — THURSDAY

8:30 – 8:45 coffee/ refreshments & logistics (+ Gemini Release Forms)

8:45 – 10:15 Celestial Sphere & Seasons — Joe Ciotti (‘Imiloa 133)

- Latitude/Longitude
- Sun’s Annual Motion in Sky
- Magnetic Direction

10:15 – 10:30 BREAK

10:30 – 11:30 Observing the Sun — Joe Ciotti (Lanihuli Observatory)

- Using the Suntracker
- Using the Sunspotter
- Tour of observatory and observing with a Heliostat (optional)

11:30 – 12:15 Imaginarium Show — Joe Ciotti (Hokulani Imaginarium)
Stars of the Pharaohs

12:15 – 1:00 LUNCH

1:00 – 2:30 Aviation Activity I — Jake Hudson (‘Imiloa 112)
NASA Flight Training AEL

2:30 – 2:50 (‘Imiloa 133) Joe Ciotti

- Constellation & Star Nomenclature
- Star Identification with Planisphere

2:50– 3:00 Daily Reflections

June 12 — FRIDAY

8:30-8:45 briefing for day’s activities— Joe Ciotti (‘Imiloa 133)

- sunrise/set chart for Hawaii

8:45 – 10:45 GPS/GIS Activity I — Toshi Ikagawa (Imiloa 133)

GPS Activity I (using Geko 201/USGS Top Map/ geocaching)

10:45 – 11:00 BREAK

11:00 – 12:15 Air Pressure — Joe Ciotti (‘Imiloa 133)

- Bernoulli’s Principe: How Airplanes Fly

12:15– 1:00 LUNCH

1:00 – 2:30 Aviation Activities II — Jake Hudson (‘Imiloa 112)
NASA Flight Training AEL

1:45 – 2:30 alternate activity for elementary school teachers:
Imaginarium Show: Larry Cat in Space – Joe Ciotti

2:30 – 2:50 Gyroscopes — Joe Ciotti ('Imiloa 133)

- Introduction to Gyroscopes and Spinning Tops
- Experimenting with Tops (demo: sample lesson)

2:50– 3:00 Daily Reflections

June 15 — MONDAY

8:15 meet at WCC (at Imaginarium bus loading area)

8:30 bus leaves for Pacific Aviation Museum—Pearl Harbor

9:00 – 12:00 tour PAM

12:00 – 1:00 lunch/gift shop

1:00 bus leaves for Bishop Museum

1:30 – 3:30 tour Bishop Museum

Science on a Sphere; Hawaii Hall; Science Adventure Hall

3:30 bus leaves for WCC campus

4:00 arrive at WCC

June 16 — TUESDAY

8:30-8:35 briefing for day's activities— Joe Ciotti ('Imiloa 133)

8:45 – 10:45 GPS/GIS Activity II — Toshi Ikagawa (Kuhina 112)

GPS Activity II (*Fun with GPS* book; intro to GIS)

10:45 – 11:00 BREAK

11:00 – 12:00 Moon — Joe Ciotti ('Imiloa 133)

- Phases of the Moon
- Eclipses

12:00 – 12:45 LUNCH

12:45 - 1:00 Spotting orbiting satellites: Heavens Above Joe Ciotti ('Imiloa 137)

1:00 – 2:00 Microgravity Activity I — Jake Hudson ('Imiloa 112)

NASA Flight Training AEL

2:00 – 3:00 Basics of Archaeoastronomy — Nancy Ali ('Imiloa 133)

- Stonehenge model

3:00 – 3:15 Daily Reflections

June 17 — THURSDAY

8:30 – 9:30 ('Imiloa 133) Joe Ciotti

Celestial Light Shows

- Continuous Spectrum (Diffraction Grating)
- Green Flash
- Blue Skies & Red Sunsets
- Rainbows

9:30 – 9:45 BREAK

9:45 – 11:00 ('Imiloa 133) Joe Ciotti

Spectroscopy

- Emission Spectrum
- Using the Star Project Spectrometer
- Reflectance Spectrometer (ALTA Spectrometer)

11:00– 11:15 BREAK

11:15 – 12:00 Imaginarium Joe Ciotti

In Search of Life in the Universe

12:00 – 12:30 ('Imiloa 133) Joe Ciotti

SETI Lesson Plan

12:30 – 1:00 LUNCH

1:00 – 1:45 Microgravity Activity I — Jake Hudson ('Imiloa 112)

NASA Flight Training AEL

1:45 – 2:30 alternate activity for elementary school teachers:

Imaginarium Show: Sky Pirates — Joe Ciotti

2:30 – 3:00 • Planetary geology and meteorite impact activities

(demo: sample lesson)—Joe Ciotti ('Imiloa 133)

- Overview of weekend's excursion to Big Island

BIG ISLAND EXCURSION**Thursday – Friday (June 18 – 19)**Air Travel**Hawaiian Airlines****18 June HA202 Honolulu to Hilo 6:07A – 6:56A****19 June HA363 Hilo to Honolulu 7:40P - 8:29P**Hotel**Nanihoa Volcanoes Resort****93 Banyan Drive Hilo, Hawaii 96720****808-969-3333**<http://www.nanihoaresort.com>**June 18 — THURSDAY**

4:45 am check in with Karen at Hawaiian Check-In/Ticketing area
6:07 depart Honolulu for Hilo on HA202
6:56 arrive Hilo
7:00 – 9:00 pick up van and drive to Nanihoa Volcanoes Resort; leave baggage (except for cloths needed for summit) at Nanihoa Volcanoes Resort
9:30 vans leave for Mauna Kea
10:30 arrive Hale Pohaku/Onizuka Center
11:30 debriefing by Gemini staff at VIS
11:45 drive to Hale Pohaku
12:00 lunch at Hale Pohaku
12:45 vans drive up to summit (35-40 min drive to summit)
1:20 – 2:30 tour Summit of Mauna Kea & Observatories—Gemini (Jon Archambeau/Peter Michaud))
2:45 – 4:15 hike to Lake Waiau
4:45 vans arrive back at 9,000-foot level: Hale Pohaku/Onizuka Center
4:45 – 5:45 dinner at Hale Pohaku
6:00 – 6:30 culture presentation at Visitor Information Station
6:45 – 7:15 sunset hike near Visitor's Center
7:30 – 9:00 early night observing at Hale Pohaku
9:00 vans leave for Hilo
10:00 arrive Nanihoa Volcanoes Resort

June 19 — FRIDAY

- 7:30 breakfast
- 8:30 vans leave Hilo for Volcanoes National Park Tour
- 9:15 arrive Volcanoes National Park
- 9:15 – 12:00 tour Volcanoes National Park—Steve Lundblad
- stop at Visitor Center to go over maps (outside wall display)
 - drive to Jaggar Museum
 - leave at 10:15 to hike from Jaggar to Steam Vent (about 2 miles)
(or just to Kilauea Camp, which is 0.5 miles shorter)
- Note: 2-1/4 mile from Visitor Center to Jaggar Museum
- 12:00 – 12:45 lunch at Volcano House
- 12:45 – 1:10 tour Visitor Center and/or Art Gallery
- 1:10 vans leave for Hilo
- 1:50 vans arrive in Hilo
- 1:50 – 4:00 tour of 'Imiloa Astronomy Education Center
- 4:10 vans depart for Big island Candy Company
- 4:30 – 5:00 stop off at Big Island Candy Company (optional)
- 5:10 pick up luggage at hotel
- 5:30 vans leave for Hilo airport
- 5:45 gas + pick up pizza
- 6:00 dinner at Hilo airport
- 7:40 depart Hilo on HA363
- 8:29 arrive Honolulu