



Galileo Teacher Training Program

A LEGACY OF THE INTERNATIONAL YEAR OF ASTRONOMY 2009

Global Hands-On Universe & Galileo Teacher Training

University of Hawaii Institute for Astronomy, Auditorium C-214

2680 Woodlawn Dr., Honolulu, Hawaii

August 4 & 5: Global HOU/GTTP Collaboration Meeting 8:30am-7:00pm

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Agenda Topics for Day 1:

Registration: 8:00 AM

- 8:30am Opening and Welcome: Carl Pennypacker -- "Another Good Year for GHOU and More Work and Successes Ahead!"
- 9:00am Pedro Russo (Keynote Speaker): A Global Contest for Astronomy Education
- 9:45am Kevin Govender (Keynote Speaker): Astronomy and Developing Nations
- 10:30am Break
- 10:45am Tim Slater (Keynote Speaker): Modern Astronomy Education
- 11:30am Rosa Doran (Keynote Speaker): How to recruit, train, and sustain 20,000 teachers around the world in the GTTP -- we have the numbers -- how do we bind us together?
- 12:15pm Lunch on your own

Reports from Exemplary Nations Succeeding and Growing with GHOU (15 minutes each):

- 1:00pm Suzanne et Michel Faye: "How to engage Toute la France in GHOU"
- 1:20pm Sergio Cabezon: Building a Sustainable System for Teacher Training in Chile with an Internet Infrastructure and regular Workshops"
- 1:40pm Rosa Doran: "Reaching Many Teachers with Many Different Methods in Portugal"
- 2:00pm Bonnie Thurber and Nepalese Collaborator: "Building GTTP and GHOU in Nepal -- Real Workshops with Salsa J!!"
- 2:20pm Break
- 2:40pm David Platz: GHOU in Atherton, Australia
- 3:00pm Kentaro Yaji: Solar Observation Data Education in Classroom
- 3:20pm Paulo Bretones : GHOU in Brazil!
- 3:40pm James Adzaml: Astronomy in Ghana
- 4:00pm Alan Gould & Rich Lohman: USA-report from HOU-USA meeting, July 2015
- 4:20pm Hongfeng GUO: GHOU Activities in China
- 4:40pm Karen Masters: Astronomy Outreach with Galaxy Zoo and the Zooniverse

Poster presentations and Roundtable Discussions

5:00-7:00pm

- Table 1 Kazuhisa Kamegai: Recent Expansion of the Science Live Show UNIVERSE
- Table 2 TimSpuck: The 2015 Chile-U.S. Astronomy Education Outreach Summit in Chile
- Table 3 Richard Gelderman: Allowing Robotic Telescopes to Enable a Hands-On Astronomy Course
- Table 4 Alan Gould: NASA Kepler and K2 Mission Education News
- Table 5 Extended Discussions
- Table 6 Extended Discussions

Please pay fees on our website <http://handsonuniverse.org/ghou2015/fees/>



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Agenda Topics for Day 2: Ideas to Move Forward

- 8:30am Rosa Doran: Welcome and International Year of Light 2015 (45 minute talk)
9:30am Carl Pennypacker: Ideas for More Focused GHOU Fundraising Activities, beginning with Latin America!!
10:00am Break
10:15am Bonnie Thurber: "Let us get \$100,000 Dollars a year -- Fundraising Strategies and Plans -- the One Hundred Foundation Approach Strategy" (round table with participation by all)
11:15am How do we engage the IAU scientists and others in our activities?

12:00pm Lunch on your own

1:00pm History of Astronomy in China as a shared GHOU Resource
1:30pm Richard Gelderman: WKU Exemplary Activities We Can Share Now!
2:30pm Break

GHOU Association Membership Business Meeting-

- 2:45pm Please send your topics to b-thurber@northwestern.edu

Luau (\$50.00 extra fee)

- 5:00pm Please join us for our private Luau In the IfA Courtyard. We guarantee authentic Luau food, drinks, music, Hawaiian dancing and great company.



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Note: We have three two-day workshops scheduled in three different rooms as listed below.

Welcome is at 8:30am. Each day closes at 5:00pm with a Special Saturday program 5:00pm.

Cost is \$35 for the two days. The cost includes coffee breaks and lunch.

Registration: <http://handsonuniverse.org/ghou2015/registration/>

All workshops strongly support Common Core Math Standards and New NGSS Science Standards

August 8 & 9: Hawaii and International Teacher and Scientist Workshops

For High School Teachers

Day 1 Understanding the Universe with Modern Tools, Auditorium C-214

- 8:45am Move to session rooms and introductions of teachers, leaders and scientists
- 9:00am Introduction to image processing
- 9:45am Measuring Size/Calculation of Plate Scale
- 10:30am Break
- 10:45am Calibrating a Smartphone as Telescope
teachers need to bring USB cord for transferring images easily
- 11:30am Moons of Jupiter
- 12:00pm Lunch in the Courtyard
- 1:00pm Jupiter mass
- 1:30pm Measuring Distance (Inverse Square Law)
- 2:00pm Using Parallax to Measure Distance
- 2:45pm Break
- 3:00pm Find a supernova to Measure Distance
- 3:45pm Introduction to Stellarium
- 4:30pm Planning Night-time Observing Sessions

Special Evening Activity for all in Auditorium C-214:

- 5:00 pm Linda Strubbe will discuss "astroEDU: Developing Open-Access Peer-Reviewed Astronomy Education Activities"

Day 2, Auditorium C-214:

- 8:30am SDSS Voyages: Galaxies, Nebula and everything SLOAN
- 10:00am Break
- 10:15am SDSS Voyages continued
- 11:30am Using Global Observatory Network of Telescopes: A Pilot Use Study!
- 12:00pm Lunch in the Courtyard
- 1:00pm Exoplanets
- 2:30pm Break
- 2:45pm Black holes, missing mass, Hubble Expansion with Supernovae
- 4:15pm Black Holes in my School (students exploring stellar mass Black Holes)
- 5:00pm Certificates for Workshop completion

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August 8 & 9: Hawaii and International Teacher and Scientist Workshops

For Middle School Teachers

Understanding Size, Scale, Ratios in the Classroom and the Universe for (Focus on Integrating Math and Science)

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Day 1 Topics include in Fern Room C-221:

- 8:45am Teacher Introductions
- 9:00am Maps of Hawaii, the Earth, the Solar System, and the Universe -- intro to Salsa J
- 10:00am Playdough recipes scaled, make Playdoh based scale model of Solar System
- 10:30am Break
- 10:45am Stellarium: position of Sun versus time and season, speed of objects
- 12:00pm Lunch in the Courtyard
- 1:00pm Angular Size - understanding pixel size in angles and physical size
Smartphones with USB plugs brought to workshop
- 2:15pm Break
- 2:30pm Estimated size / distance using scale plate (fireball)
- 3:30pm Beyond water rockets

Special Evening Activity for all in Auditorium C-214:

- 5:00pm Linda Strubbe will discuss "astroEDU: Developing Open-Access Peer-Reviewed Astronomy Education Activities"

Day 2 Topics include in Fern Room C-221:

- 8:30am Crater Impacts, death of dinosaurs, moon craters, simulate crater formation in class, craters throughout the solar system
- 9:30am Salsa J journey of exploration - understand solar system objects in open ended discovery times -- students decide and classify what they see and make models.
- 10:30am Break
- 10:45am Tracking an asteroid -- predict position
- 12:00pm Lunch
- 1:00pm Hot wheel cars and electric cars tracks and trajectories and energy and linear equations
- 2:15pm Break
- 2:30pm Viewing the night sky with and without telescopes
- 3:45pm Inquiring the Moon (an inquiry based activity)
- 5:00pm Certificates for Workshop completion

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For Eager Middle School and High School Teachers

IASC: Real Discoveries of Asteroids International Asteroid Search Campaign & Other Topics -- for Eager Middle and High School Teachers

Day 1 Topics include in Moon Room B-228:

- 8:45am Teacher introductions
- 9:00am Overview of asteroids -- KT extinctions.
YouTube videos that teachers can use to engage students
- 10:30am Break
- 10:45am Other web resources on asteroids: <http://goo.gl/WfoA6j>
- 11:30am The history of Ceres' discovery is equally interesting:
http://en.wikipedia.org/wiki/Ceres_%28dwarf_planet%29
- 12:00pm Lunch in the Courtyard
- 1:00pm Why asteroids move! Teachers try to derive asteroid motion versus time
- 2:00pm Asteroids in those libero images with Salsa J
- 2:30pm Break
- 2:45pm Wise images of asteroids and asteroid temperatures.
- 3:00pm Richard Gelderman: Astronomical Spectroscopy and Remote Telescopes

Special Evening Activity for all in Auditorium C-214:

5:00-6:30pm Linda Strubbe will discuss "astroEDU: Developing Open-Access Peer-Reviewed Astronomy Education Activities"

Day 2: Astrometrica and Asteroid Searching in Moon Room B-228:

- 9:00am How to find and report on asteroids.
- 10:30am Break
- 12:00pm Lunch in the Courtyard
- 2:30pm Break
- 5:00pm Certificates for Workshop completion

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