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WCU Study Abroad and Carbon Offsets: Not whether but whXen NOW!

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WCU Study Abroad and Carbon Offsets

Not whether but when



Now!

Paul Sylvester, Ph.D

Assistant Professor

Early and Middle Grades Education

Member Sustainability Council

Member EMGE International Committee



First, let's take a moment...



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Urgency



My background





WCU Study Abroad and Carbon Offsets

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Current University Commitment:

- Signatory of the The American College and University President's Climate Commitment (ACUPCC) 2010
- Carbon neutral by 2025



Source: *WCU Climate Action Plan* (2010) Retrieved 11-3-19



Current University Travel Plan

- * Increase use of webinars
- * Eliminate unnecessary trips
- * Make people going to the same destination go on the same flight (?)
- * Identify greenest airlines
- * Require departments to purchase carbon offsets for flights



Time frame

- * By 2014: System in place to track all miles
- * By 2020: All air miles offset

How many WCU air travel miles?

What the Climate Plan says:

UNIVERSITY FUNDED
1,145,075
AIR MILES TRAVELED



Source: *WCU Climate Action Plan* (2010) Retrieved 11-3-19

How many WCU air travel miles?

The actual number (2017/2018):

7,400,000

Total miles of air travel

Sources: 1) Center for International Programs for study abroad miles and 2) Accounts payable for other travel.

How many WCU air travel miles?

The actual numbers (2017/2018):

4,500,000 miles

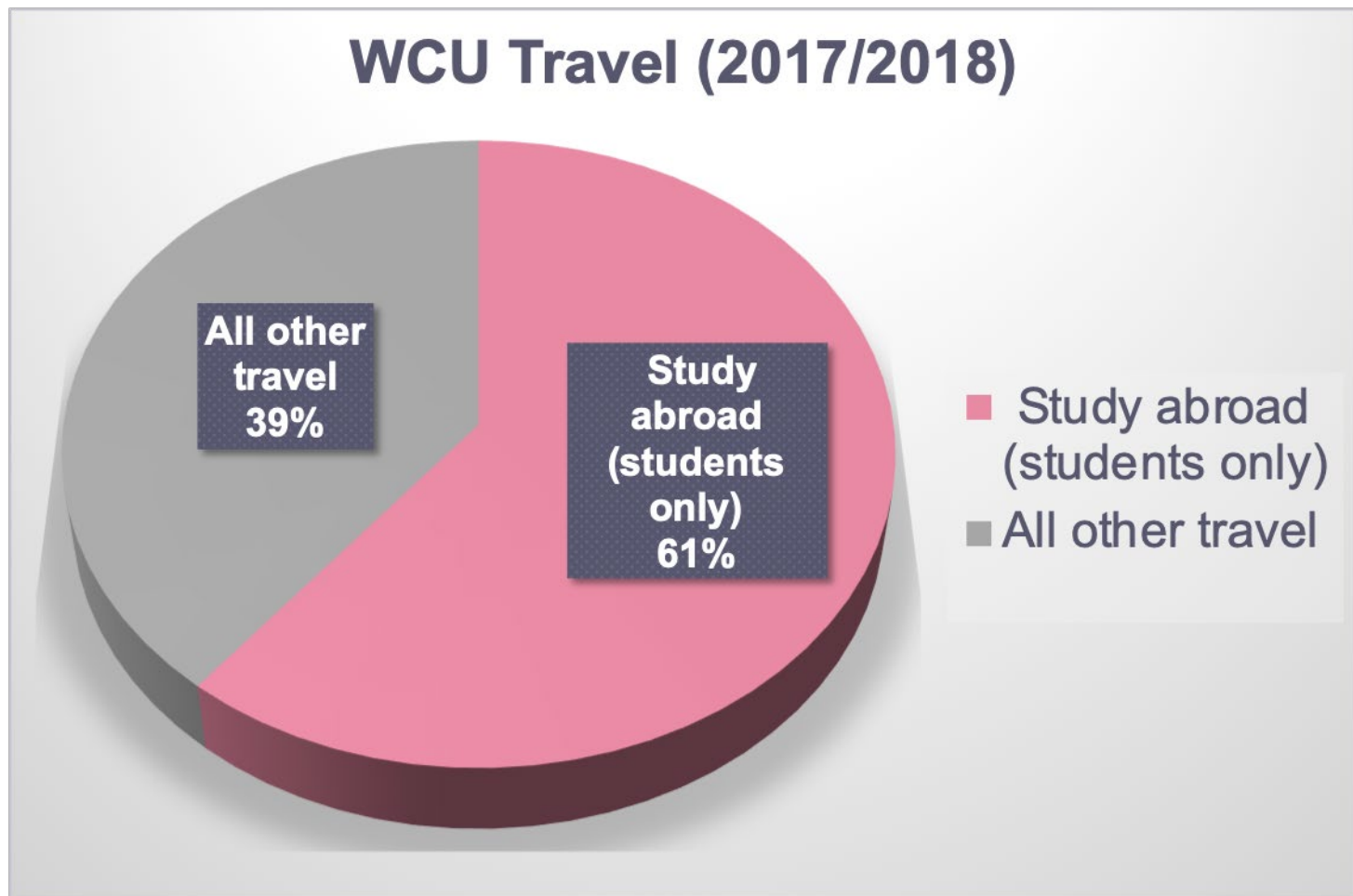
For study abroad (students only)

2,900,000 miles

For other WCU travel (faculty, staff and students)

Sources: 1) Center for International Programs for study abroad miles and 2) Accounts payable for other travel.

How many WCU air travel miles?



Sources: 1) Center for International Programs for study abroad miles and 2) Accounts payable for other travel.

Carbon output for 4.5 million miles of study abroad:

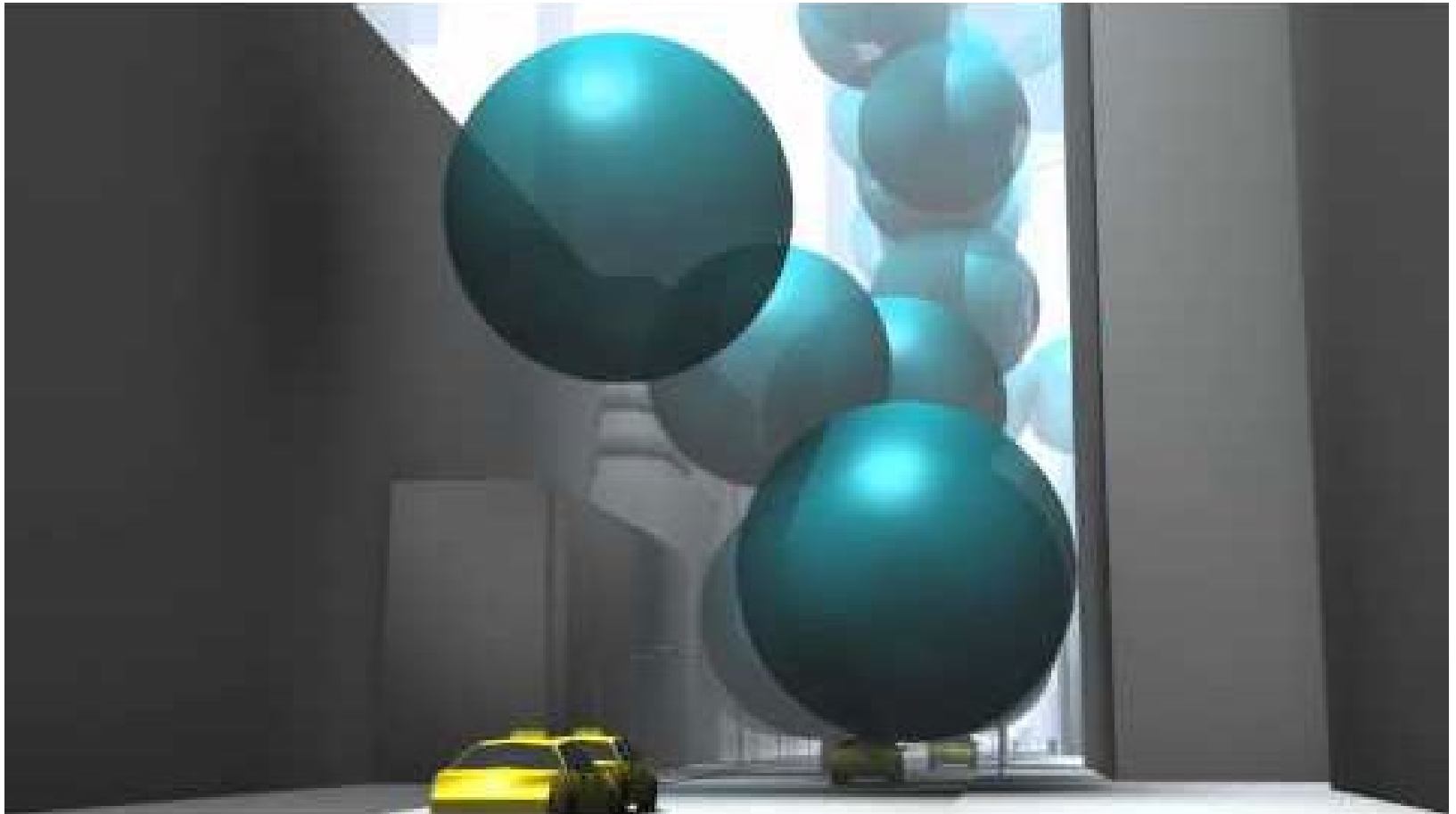
Carbon Calculations



Source	Tonnes of Co2 (metric tons)
NativeEnergy	1639 tonnes
CarbonFund.org calculator (cited by WCU Plan)	900 tonnes
Terra Pass	746 tonnes

Excellent
opportunity!

Picturing carbon



Or to see WCU Output (but this won't load into ppt)

<https://realtime.realworldvisuals.com/?heading=WCU%20Study%20Abroad%20Carbon%20Output&subheading=&gas=carbon%20dioxide&rate=37773.00742923272&>

Carbon offset for 4.5 million miles of study abroad:

Carbon Calculations

Source	Tonnes of Co2 (metric tons)	Cost to offset
NativeEnergy	1639 tonnes	\$25,000
CarbonFund.org calculator (cited by WCU Plan)	900 tonnes	\$9000
Terra Pass	746 tonnes	\$8000

Carbon offset for 4.5 million miles of study abroad:

Carbon Calculators

Source	Tonnes of Co2 (metric tons)	Cost to offset	Average cost per student
NativeEnergy	1639 tonnes	\$25,000	\$47.00
CarbonFund.org calculator (cited by WCU Plan)	900 tonnes	\$9000	\$17.00
Terra Pass	746 tonnes	\$8000	\$15.00

Wha?

What are carbon offsets?

“Carbon offsets are the reduction or removal of greenhouse gases (GHG) (as measured by their carbon dioxide equivalent [CO₂e]) to counterbalance or compensate for emissions from other activities.” (ACUPCC)

What are carbon offsets?

“Carbon offsets are the reduction or removal of greenhouse gases (GHG) (as measured by their carbon dioxide equivalent [CO₂e]) to counterbalance or compensate for emissions from other activities.” (ACUPCC)



*But what are
carbon offsets*

Types of carbon offset projects

- 1) **Renewable energy** (Wind, solar, hydroelectric, biofuel)



Better.

Types of carbon offset projects

- 1) Renewable energy
- 2) **Methane collection and combustion**
(Collection and combustion of methane generated by farm animals by use of an anaerobic digester, landfills and other waste)

Types of carbon offset projects

- 1) Renewable energy
- 2) Methane collection and combustion
- 3) **Energy efficiency** (reducing the demand by replacing carbon combustion devices, development of energy efficient buildings)

Types of carbon offset projects

- 1) Renewable energy
- 2) Methane collection and combustion
- 3) Energy efficiency
- 4) Destruction of industrial pollutants

Types of carbon offset projects

- 1) Renewable energy
- 2) Methane collection and combustion
- 3) Energy efficiency
- 4) Destruction of industrial pollutants
- 5) Land use, land-use change, and forestry

Types of carbon offset projects

5) Land use, land-use change, and forestry

- Avoided [deforestation](#) is the protection of existing forests.
- [Reforestation](#) is the process of restoring forests on land that was once forested.
- [Afforestation](#) is the process of creating forests on land that was previously unforested, typically for longer than a generation.
- [Soil management](#) projects attempt to preserve or increase the amount of carbon sequestered in soil.

Carbon offsets aren't just for carbon

Carbon offsets represent multiple categories of greenhouse gases, including^[13] carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), and sulfur hexafluoride (SF₆)



Criteria for quality offsets

- What emissions would occur in the absence of a proposed project?

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- Does implementing the project cause higher emissions outside the project boundary?

Criteria for quality offsets

- What emissions would occur in the absence of a proposed project?
- Would the project occur anyway without the investment raised by selling carbon offset credits?
- Are some benefits of the reductions reversible?
- How long would it take for the benefits to accrue?
- Does implementing the project cause higher emissions outside the project boundary?
- Are there other benefits in addition to the carbon emissions reduction, and to what degree?

Possible “co-benefits” of carbon offsets for local communities

- 1) Development of new green jobs
- 2) Improvements for the local population
- 3) Better air quality for local communities
- 4) Savings through increased efficiency
- 5) ?



Possible harms to local communities

- 1) Disruption of local economies (e.g. collecting and selling firewood)
- 2) Disruption of cultural practices
- 3) ?



Criticism of carbon offsets

The reduced fat Oreo problem



Criticism of carbon offsets

The reduced fat Oreo problem

Carbon offsets are "an easy way out for governments, businesses and individuals to continue polluting without making changes to the way they do business or their behavior.."

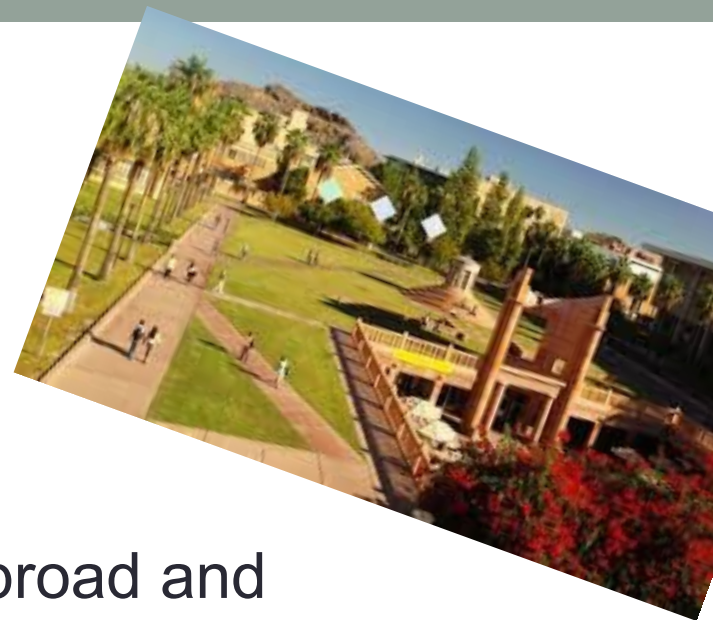
From a 2009 joint statement of Greenpeace, World Wildlife Fund (UK) and Friends of the Earth



Case Study #1: Arizona State University

The Program

- Purchase of carbon offsets both abroad and through community-based offset projects
- Community project of planting trees to support mission of education, research. Helped win support.
- Flat rate of \$8.00 for any trip including study abroad. Advantages: Simplicity in implementation & domestic flights lighten burden on study abroad)



Case Study #1: Arizona State University

Development / Timeline

- University Sustainability department and finance department led the effort
- Timeline: 2016 start date of effort... 2018 implementation
- Total carbon off-sets by 2025
- Announcements programs by Univ. Maryland and UCLA may reduced hesitation of stakeholders



Case Study #1: Arizona State University



Money

- With the broad spectrum of cost of prices of carbon (from \$1.00 to over \$100.00 per per tonne) price was determined by the futures price on the Intercontinental Exchange for one Metric Ton of Carbon Dioxide Equivalent (MTCDE), which was \$9.43.
- That came out to an estimated \$17.42 per flight in 2025.
- This price seemed like it would stress department budgets so they will escalate to \$10, \$12, \$15, and \$18 in each successive year to meet the estimated cost of MTCDE in 2025.

Case Study #2: University of Maryland

The Program

- Offset for all forms of University travel
- Surcharge for flights is based on miles flown



Case Study #2: University of Maryland

The Timeline

- Office of Sustainability led the effort
- Timeline: 2017 President signed “Carbon Neutral Travel Initiative” and implementation began.





Case Study #2: University of Maryland

The money & the players

- Surcharge of \$0.0027 per mile
- The surcharge amount comes from Office of Sustainability who recommends the price to VP of Administration & Finance.
- Education Abroad office places surcharge to its program fees
- Department of Business Services collects data from the Travel Approval Request System
- Office of Sustainability manages the Greenhouse Gas Reduction Fund
- Vice President for Administration and Finance purchases third party carbon offsets.

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Start with all travel or just study abroad?



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Who will pay for it?

- Voluntary contributions by the traveler (“a checkbox”)?
- Surcharge to departments (if it were for all flights)?
- Surcharge to study abroad program fees?
- Grant funding by the WCU Foundation?
- Other?

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Who will carry it forward?

- Leadership from the top?
- Office of Sustainability?
- Sustainability Council?
- Center for International Programs?
- Or some combination of the above



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The timeline: 2020 (no question mark)

Urgency

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Discussion, questions and comments

- Start with all travel or just study abroad?
 - Who will pay for it?
 - Who will carry it forward?
 - Timeline?
- * In Feb. & March Michael Di Giovine and I will lead a workshop on planning study abroad programs with attention to sustainability. Date/time/place TBD.