

**SIO 87**  
**Freshman Seminar**  
**IPCC Science**  
**(updated Nov. 17, 2015)**

Prof. Lynne Talley, SIO  
307 Nierenberg Hall  
[ltalley@ucsd.edu](mailto:ltalley@ucsd.edu)

Tuesday's 11:30-1:20

**Syllabus**

Oct. 27: Introduction to IPCC: the summaries for policy makers

Nov. 3: Modern coastal time series: SIO Pier time series sampling

- a. SST since 1916
- b. Tide gauge
- c. Biological samples
- d. Air samples for oxygen and CO<sub>2</sub>

Melissa Carter (SIO shore station), Sara Afshar (Keeling lab): pier and  
Vaughan Hall

Nov. 10: Large-scale time series: Argo, drifter and glider labs

Dan Rudnick, OAR laboratory

Nov. 17: Deep time climate time series: Ice core freezer

Jeff Severinghaus Vaughan Hall

Continuation of carbon and oxygen air sampling

Ralph Keeling, Sara Afshar Vaughan Hall

Nov. 24 or Dec. 1: Ships, or aquarium, and wrapup

Tenth Ave. Marine Terminal (confirming date and transportation) or Scripps  
Aquarium

**Resources online:**

IPCC

<https://www.ipcc.ch/report/ar5/>

and also: <http://www.climatechange2013.org/>

San Diego and climate

•<http://www.sandiego.edu/2050/>

COP21 UNESCO

<http://www.cop21.gouv.fr/en>

My website:

<http://scrippsscholars.ucsd.edu/ltalley>

## Weekly schedule

### Tuesday, Oct. 27

Introduction, OAR Conference Room

- IPCC AR5 WG1 Headline statements
- IPCC AR5 WG1 Summary for Policymakers

Powerpoint from IPCC AR5: <http://www.climatechange2013.org/background/>  
(Click on WGI Generic Presentation in left menu bar.)

### Tuesday, Nov. 3

SIO Pier time series sampling and

Keeling laboratory (atmosphere oxygen and CO<sub>2</sub> measurements)

- IPCC AR5 WG1 Headline statements
- IPCC AR5 WG1 Summary for Policymakers: highlight information about ocean warming and sea level change
- IPCC AR5 WG1 Technical Summary: highlight information about ocean warming and sea level change

[Powerpoint with some introductory slides on heat, sea level, carbon dioxide](#)

### Tuesday, Nov. 10

SIO Instrument Development Group (Dan Rudnick): Argo float and glider labs

- IPCC AR5 WG1 Technical Summary: highlight TFEs (Thematic Focus Elements) on hydrological cycle changes
- IPCC AR5 WG1 FAQs (Frequently Asked Questions): highlight FAQs on hydrological cycle changes
- Information from IPCC AR5 WG1 Chapter 1 (key concepts)

Argo profiling float website (UCSD local site): <http://www.argo.ucsd.edu/>

Instrument development group at SIO: <http://idg.ucsd.edu/>

Spray glider website: <http://spray.ucsd.edu/pub/rel/index.php>

Climate in the news this week:

COP21 United Nations Conference on Climate Change (Paris)

<http://www.cop21.gouv.fr/en>

### Tuesday, Nov. 17

Meet in Vaughan 300

Ice core lab (Jeff Severinghaus) Vaughan 342: <http://icebubbles.ucsd.edu/>

Scripps CO<sub>2</sub> program Vaughan 326 (Sara Afshar) <http://scrippsco2.ucsd.edu/>

Keeling oxygen program Vaughan 344 (Sara Afshar) <http://bluemoon.ucsd.edu/>

Discussion: based on IPCC FAQs

[http://www.climatechange2013.org/images/report/WG1AR5\\_FAQbrochure\\_FINAL.pdf](http://www.climatechange2013.org/images/report/WG1AR5_FAQbrochure_FINAL.pdf)

Alexandra Harbart FAQ 3.1 - Is the Ocean Warming?

Brian Dewaele-dillon: FAQ 3.3 - How Does Anthropogenic Ocean Acidification Relate to Climate Change?

Marelle Arndt: FAQ 6.1 – Permafrost and global warming.

Jocelyn Barraeta: FAQ 7.3 – Could geoengineering counteract climate change and what side effects might occur?

Jin Yiyao: FAQ12.1-Why Are So Many Models and Scenarios Used to Project Climate Change?

## **Measurements on the pier (Melissa Carter, SIO):**

Manual Shore Stations Program:

100 year data set of surface and bottom temperature and salinity measurements collected manually at Scripps Pier. This program also supports data collection at 8 other stations in CA. We are in the process of updating this website right now for the 100 year anniversary of this data set.

<http://shorestation.ucsd.edu/>

These data are also presented on the SCCOOS website and show most recent data collected. Again this website needs work and will hopefully be replaced with the new one being created.

<http://sccoos.org/data/manualshorestations/index.php?study=SIO+Pier+Shore+Station>

Automated Shore Stations Program

Suite of sensors attached to pier to collect high frequency, automated data. There are 4 stations that are part of this program in southern CA.

<http://sccoos.org/data/autoshestations/autoshestations.php>

NOAA tide gauge station and meteorological observations

<http://tidesandcurrents.noaa.gov/stationhome.html?id=9410230>

details on sensor types [http://tidesandcurrents.noaa.gov/publications/CO-OPS\\_Measurement\\_SpecUpdated\\_4.pdf](http://tidesandcurrents.noaa.gov/publications/CO-OPS_Measurement_SpecUpdated_4.pdf)

Other interesting projects on the pier

CORDC- temperature chain <http://cordc.ucsd.edu/projects/Piers/SIO/TChain/>

Jen Smith and Todd Martz- pH and O2 data set -

[http://coralreefecology.ucsd.edu/research/scripps\\_ocean\\_acidification\\_real-time\\_soar\\_monitoring\\_program/](http://coralreefecology.ucsd.edu/research/scripps_ocean_acidification_real_time_soar_monitoring_program/)

HF radar - Surface Current Mapping <http://sccoos.org/data/hfrnet/>

Harmful Algal Bloom Program - I work with this program too so I can go into more detail on this. Long term observations of chlorophyll and phytoplankton community data. <http://sccoos.org/data/habs/>

## **Measurements of CO<sub>2</sub>**

<https://scripps.ucsd.edu/programs/keelingcurve/>