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# Climate Change and Transition Studies

An Interactive Online Learning Initiative

Designed for IvyMind Consulting, LLC  
as a project of the

Young Scholars' Online Learning Initiative

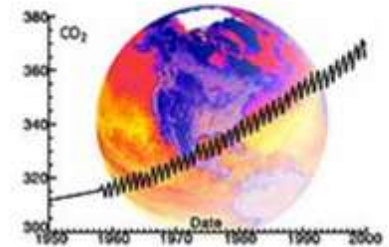
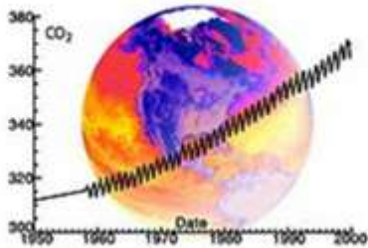
created by

Timothy C. Weiskel

Research Director, *Cambridge Climate Research Associates*

**Climate Science for Human Survival**

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## Session 8

Outline of Steps for Conducting Ongoing  
Research on Climate Change Topics:  
Getting Access to the Primary  
Scientific Literature

30 August 2018

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# General goals and procedures in searching for scientific literature....

What follows in the next few slides is a general “checklist” of procedures you can follow to begin research on any topic you wish relating to the science of climate change....

# General goals and procedures in searching for scientific literature....

What follows in the next few slides is a general “checklist” of procedures you can follow to begin research on any topic you wish relating to the science of climate change....

The **FIRST PRINCIPLE** of research is to *assume that someone has already begun research on the topic* you wish to investigate.

# General goals and procedures in searching for scientific literature....

Your first research task, then, is to find out **who** has done **what kind of scientific research** on your topic (or closely related topics).

# General goals and procedures in searching for scientific literature....

Your first research task, then, is to find out **who** has done **what kind of scientific research** on your topic (or closely related topics).

Here are some steps you can follow:

(\*) **Open a “plain text” editor** on your computer – one with no formatting or special characters... This will be a kind of...

# General goals and procedures in searching for scientific literature....

... “scratch pad” It will be where you can record “search strings,” URLs, names, institutional addresses, etc.

Here you can work on the format of footnotes during the course of your research. From here you can transfer these things to your note taking system in MicroSoft Word or any other program....

# General goals and procedures in searching for scientific literature....

Next, jot down a **key word** or a **phrase** that encapsulates generally what you want to investigate, for example:

“sea-level change and coastal populations.”

“climate change and food production”

“severe weather and climate change”

“climate change and migration”

Etc..

# General goals and procedures in searching for scientific literature....

Then, enter this key word or key phrase in one of the commonly available online news aggregators, or search in the respected “print” publications” like the *New York Times*, *The Guardian*, or *The Washington Post...etc.*

Then, start taking notes in your “scratch pad” plain text file on the titles and URL links to the articles you have found in these news sources.



# General goals and procedures in searching for scientific literature....

Next, look for **key information** in the news articles, including:

- **names of individuals** cited or quoted
- **names, dates and publishers** of any mentioned “report” or article
- **institutions mentioned** in the article.
- the name of the **author** of the article
- the **date** of the article

**Then**, construct a full footnote of the article with useful quotes, properly attributed.

# General goals and procedures in searching for scientific literature....

Look especially for *recent*:

- Synthesis “reports”
- Review articles
- Scientific journal article titles (with author and date for later searching)
- General government report titles
- Special reports by specialized “Non-governmental organizations involved with the issue.

All these contain bibliographies you can “mine.”

# General goals and procedures in searching for scientific literature....

Start to “mine” the materials you have found  
“behind” the news story itself in each of the:

- Synthesis “reports”
- Recent scientific journal article titles  
(with author and date for later searching)
- General government reports
- Special reports by specialized “Non-  
governmental organizations involved with  
the issue.

“Mine” the key sources from these materials

# General goals and procedures in searching for scientific literature....

Once you have compiled your information from these the news sources you have found, go to [Science Daily](#) and begin to search for your topic phrases in their search engine.

Look as well at the phrases that they suggest or that come up in the titles of “related articles.”

# General goals and procedures in searching for scientific literature....

Jot down all the relevant articles from *Science Daily*, and trace them to their source – at the bottom of each article often the full citation is given to you as a bibliography entry with a DOI link to the original article.

**Then**, go to the original article and look for everything you can find of interest....

# General goals and procedures in searching for scientific literature....

Items of particular interest for you in these  
“primary source” scientific articles should be:

- names and affiliations + email  
addresses
- “cited in” list of articles
- “references”

“Mine” all this material from each article and  
add it to your “scratch pad,” noting each with  
proper citation form.

# General goals and procedures in searching for scientific literature....

Arrange your notes in the “scratch pad” in chronological order of the date of publication.

Notice who emerges as the *most recent* author, research team or institution.

THEN, go to [“Google Scholar”](#) and begin searching on names of key scholars for recent primary source scientific articles...

# General goals and procedures in searching for scientific literature....

When you have located all the relevant recent scholarly literature, you can begin the same subject search in the key NGO and specialized climate research online sources outlined in the class guide given to you earlier and posted in the class “Resources:”

*Some Useful Initial Resources on  
Climate Change*



# Some Examples....

of large-scale “reports”  
to “mine” for footnotes  
and references....

The IPCC  
**Assessment**  
**Reports** –  
most recent  
is 2014,  
especially  
“Working  
Group II”

Has very rich  
bibliography to start  
your research.





Embassy  
of the Federal Republic of Germany  
Beijing

## Mapping China's Climate Policies

June 2017 Edition

Craig Hart  
Zhu Jiyun  
Ying Jiahui  
Development Technologies International



China Carbon Forum  
中国碳论坛

An independent platform to foster trust and cooperation  
among China's stakeholders for climate action

**German scholars  
have made a start,  
and perhaps this is  
the beginning of a  
China-Germany  
climate leadership  
initiative.**



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*China Is a Climate Leader but Still Isn't  
Doing Enough on Emissions, Report Says*

**Find this “Report”  
mentioned in this  
*New York Times*  
article...**

**Note, author, date,  
title, institution,  
etc., then conduct  
search for that  
primary source...**



...yuan, the provincial capital of Shanxi, China's biggest coal-  
New York Times



# How can we learn more about China's climate policies?

## Columbia | SIPA Center on Global Energy Policy | Guide to Chinese Climate Policy

Posted on [July 19, 2018](#) | [Leave a comment](#) | [Edit](#)



The screenshot shows the website header for the Columbia SIPA Center on Global Energy Policy. The logo features a crown icon followed by the text 'COLUMBIA | SIPA' and 'Center on Global Energy Policy'. A search bar is located in the top right corner. The navigation menu includes links for 'About', 'Our Work', 'Our Team', 'News & Events', 'Initiatives', 'Podcast', and 'Get Involved'. Below the navigation, a blue banner displays the breadcrumb 'Home > Our Work > Resource Library > Reports' and the main title 'Guide to Chinese Climate Policy'. To the right of the banner is a graphic of the Chinese flag overlaid on a map of China.

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## Guide to Chinese Climate Policy

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## Guide to Chinese Climate Pol

[Guide to](#)

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Center on Global Energy Policy

## GUIDE TO CHINESE CLIMATE POLICY 2018

BY DAVID SANDALOW



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## Guide to Chinese Climate Policy

China's Policies and Actions for  
Addressing Climate Change  
(2017)

National Development and Reform Commission

P.R. China

October 2017



Whatever the particular topic  
you choose to research....

Always remember to keep the “Big Picture”  
in mind.

Wherever possible, try to articulate the  
relationship between your particular topic  
and the “Big Picture” of moving humanity  
away from its current dependence on  
fossilized carbon for its energy needs.....

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Wherever possible, try to articulate the  
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and the “Big Picture” of moving humanity  
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fossilized carbon for its energy needs.....

What is the “big picture” problem?

The big problem is that humanity as a whole has to get beyond fossil fuels...



The big problem is that humanity as a whole has to get beyond fossil fuels...



Extinction is not the goal.

... and now **China** must take the lead...

\*\*\*

The big problem is that humanity as a whole has to get beyond fossil fuels...



Extinction is not the goal.

... and now **YOU** must take the lead...

\*\*\*



# Heading Beyond the Point-of-No-Return: National Carbon Policies, “Hothouse Earth” and the Crying Need for Global Leadership



**Big Remaining Question:**  
**Can other world leaders from India and China provide the *global leadership* that is now required to save civilization from the predicted “hothouse Earth” climate catastrophe?**



Now, there is no formal agenda

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NEW RESEARCH IN Physical Sciences Social


**Trajectories of the Earth System in the Anthropocene**

PNAS August 6, 2018. 201810141; published ahead of print August 6, 2018. <https://doi.org/10.1073/pnas.1810141115>



## ‘Feedback loops’ of climate events could push Earth into a hothouse state, scientists warn

A cascade of 10 events could put Earth on a trajectory for ruinous effects by the end of the century



**‘Feedback loops’** of climate events could push Earth into a hothouse state, scientists warn

A cascade of 10 events could put Earth on a trajectory for ruinous effects by the end of the century



# Domino-effect of climate events could move Earth into a 'hothouse' state

Leading scientists warn that passing such a point would make efforts to reduce emissions increasingly futile



▲ Polar bears on sea ice: the loss of the Greenland ice sheet could disrupt the Gulf Stream, which would in turn raise sea levels and accelerate Antarctic ice loss. Photograph: Paul Goldstein/Cover Images

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▲ Polar bears on sea ice: the loss of the Greenland ice sheet could disrupt the Gulf Stream, which would in turn raise sea levels and accelerate Antarctic ice loss. Photograph: Paul Goldstein/Cover Images

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## Trajectories of the Earth System in the Anthropocene



Will Steffen, Johan Rockström, Katherine Richardson, Timothy M. Lenton, Carl Folke, Diana Liverman, Colin P. Summerhayes, Anthony D. Barnosky, Sarah E. Cornell, Michel Crucifix, Jonathan F. Donges, Ingo Fetzer, Steven J. Lade, Marten Scheffer, Ricarda Winkelmann, and Hans Joachim Schellnhuber

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# Trajectories of the Earth System in the Anthropocene



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## Abstract

We explore the risk that self-reinforcing feedbacks could push the Earth System toward a planetary threshold that, if crossed, could prevent stabilization of the climate at intermediate temperature rises and cause continued warming on a “Hothouse Earth” pathway even as human emissions are reduced. Crossing the threshold would lead to a much higher global average temperature than any interglacial in the past 1.2 million years and to sea levels significantly higher than at any time in the Holocene. We examine the evidence that such a threshold might exist and where it might be. If the threshold is crossed, the resulting trajectory would likely cause serious disruptions to ecosystems, society, and economies. Collective human action is required to steer the Earth System away from a potential threshold and stabilize it in a habitable interglacial-like state. Such action entails stewardship of the entire Earth System—biosphere, climate, and societies—and could include decarbonization of the global economy, enhancement of biosphere carbon sinks, behavioral changes, technological innovations, new governance arrangements, and transformed social values.

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any time in the recent past. Such a pathway would exist and when crossed, would likely cause serious disruptions to ecosystems, society, and economies. Crossing the threshold would lead to a much higher global average temperature... [T]he resulting trajectory would likely cause serious disruptions to ecosystems, society, and economies. human action and stabilize it of the entire Earth decarbonization behavioral changes transformed social values.



## Abstract

We explore the risk that self-reinforcing feedbacks could push the Earth System toward a potential threshold, such as a "Hothouse Earth" state, beyond which the system would stabilize in a less habitable interglacial-like state. We examine the evidence that such a threshold might exist and where it might be. If the threshold is crossed, the resulting trajectory would likely cause serious disruptions to ecosystems, society, and economies. Collective human action is required to steer the Earth System away from a potential threshold and stabilize it in a habitable interglacial-like state. Such action entails stewardship of the entire Earth System—biosphere, climate, and societies—and could include decarbonization of the global economy, enhancement of biosphere carbon sinks, behavioral changes, technological innovations, new governance arrangements, and transformed social values.



Professor Johan Rockström  
Environmental Sciences, Stockholm University

Live Stockholm



**JOANNA HAIGH**  
**Co-Director, Grantham Institute**  
For Climate Change & Environment



<https://environmentaljusticetv.wordpress.com/2018/08/22/hothouse-earth-researchers-explain-climate-threshold/>



Maine, USA

**PROFESSOR KATHERINE RICHARDSON**

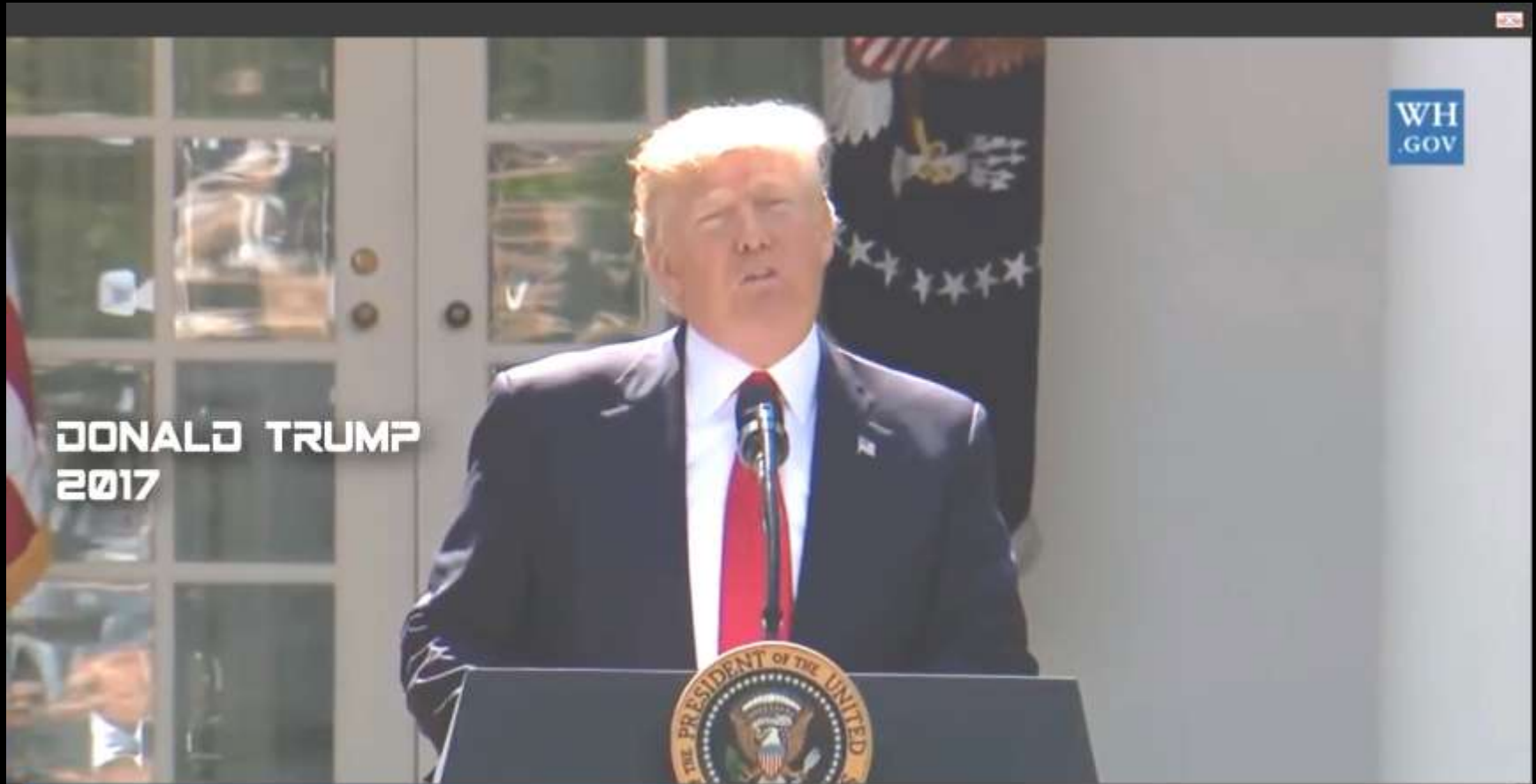
Co-author, *Trajectories of the Earth System in the Anthropocene*

GOING  
UNDERGROUND

GOING  
UNDERGROUND

<https://environmentaljusticetv.wordpress.com/2018/08/22/hothouse-earth-researchers-explain-climate-threshold/>

**What is the U.S. doing in the face of these dire warnings from the scientists?...exactly the wrong thing**



# “Beyond Oil” movement...reacts to Trump Administration’s car efficiency roll-back.

BERKELEY, CA



**MICHAEL BRUNE**  
The Sierra Club



# Trump loosens auto emissions standards

Posted on [August 24, 2018](#) | [Leave a comment](#)



<https://environmentaljusticetv.wordpress.com/2018/08/24/trump-loosens-auto-emissions-standards/>





05:30



# Environmental Protection Agency Replaces Obama-Era Rules To Benefit Coal

August 21, 2018



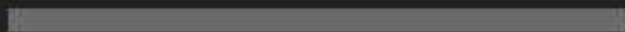
The Environmental Protection Agency announced its plan to roll back an Obama-era plan to limit greenhouse gas emissions. The new rules instead loosen restrictions on coal-fired plants and allow states more autonomy to set their own climate policies.

*Here & Now's* Jeremy Hobson takes a closer look with NPR energy and environment editor [Jennifer Ludden](#) (@JenniferLudden).

*This segment aired on August 21, 2018.*



00:00



00:00



August 21, 2018 The Environmental Protection Agency announced its plan to roll

<https://environmentaljusticetv.wordpress.com/2018/08/21/environmental-protection-agency-replaces-obama-era-rules-to-benefit-coal-here-now/>



<https://environmentaljusticetv.wordpress.com/2018/08/22/trump-administration-admits-1400-more-people-will-die-each-year-following-coal-plant-deregulation/>

The trouble is that the national carbon policy now being pursued by Trump has **global implications....**



<https://environmentaljusticetv.wordpress.com/2018/08/26/our-fights-ahead/>



... the whole world is affected by the collapse of U.S. leadership on climate

## China's Coastal Cities, Underwater – The New York Times

Posted on [July 29, 2017](#) | [Leave a comment](#) | [Edit](#)

The New York Times

WORLD

# China's Coastal Cities, Underwater

By [DEREK WATKINS](#) DEC. 11, 2015

China produces more carbon dioxide emissions than any other country, and its coastal cities will be dramatically affected by rising seas as the atmosphere warms, according to a November [report](#) by Climate Central, a nonprofit organization.

Barring large amounts of spending on shoreline barriers and flood control systems, these images show what China would face if carbon emissions cause global temperatures to rise by **2° Celsius (3.6°F)**, the current international target by 2100, or by **4° Celsius (7.2°F)**, roughly the warming predicted if no action is taken to curb emissions.

By [DEREK WATKINS](#) DEC. 11, 2015

# Big Remaining Question:

Can other world leaders (from India and China) now provide the *global leadership* that is crucial to save global civilization?





It doesn't matter if you “**believe**” *in global warming or not. It will still have a dramatic impact on all of human life....*



Citizens all over the world need now to reduce carbon emissions drastically and plan to adapt to the changing climate.



A *new* kind of citizen-science alliance  
is emerging around the world to  
work together to devise  
a just transition to  
a sustainable  
future.

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# Farewell & Thank You...

Thank you all very much for taking  
the course...



Farewell & Thank You...

Thank you all very much for taking  
the course...

I look forward to reading your  
research papers.

# Farewell & Thank You...

Further, I look forward to hearing  
from you about the climate  
research you will all be  
undertaking throughout  
the rest our lives  
from now  
onwards....

Best wishes to you all...

# “Transition Studies” ... because extinction is not the goal...

Posted on [August 31, 2018](#) | [Leave a comment](#)



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# Climate Change and Transition Studies

An Interactive Online Learning Initiative

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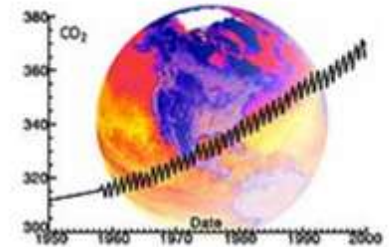
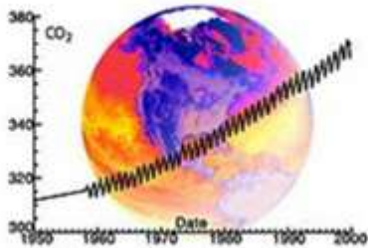
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**Climate Science for Human Survival**

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