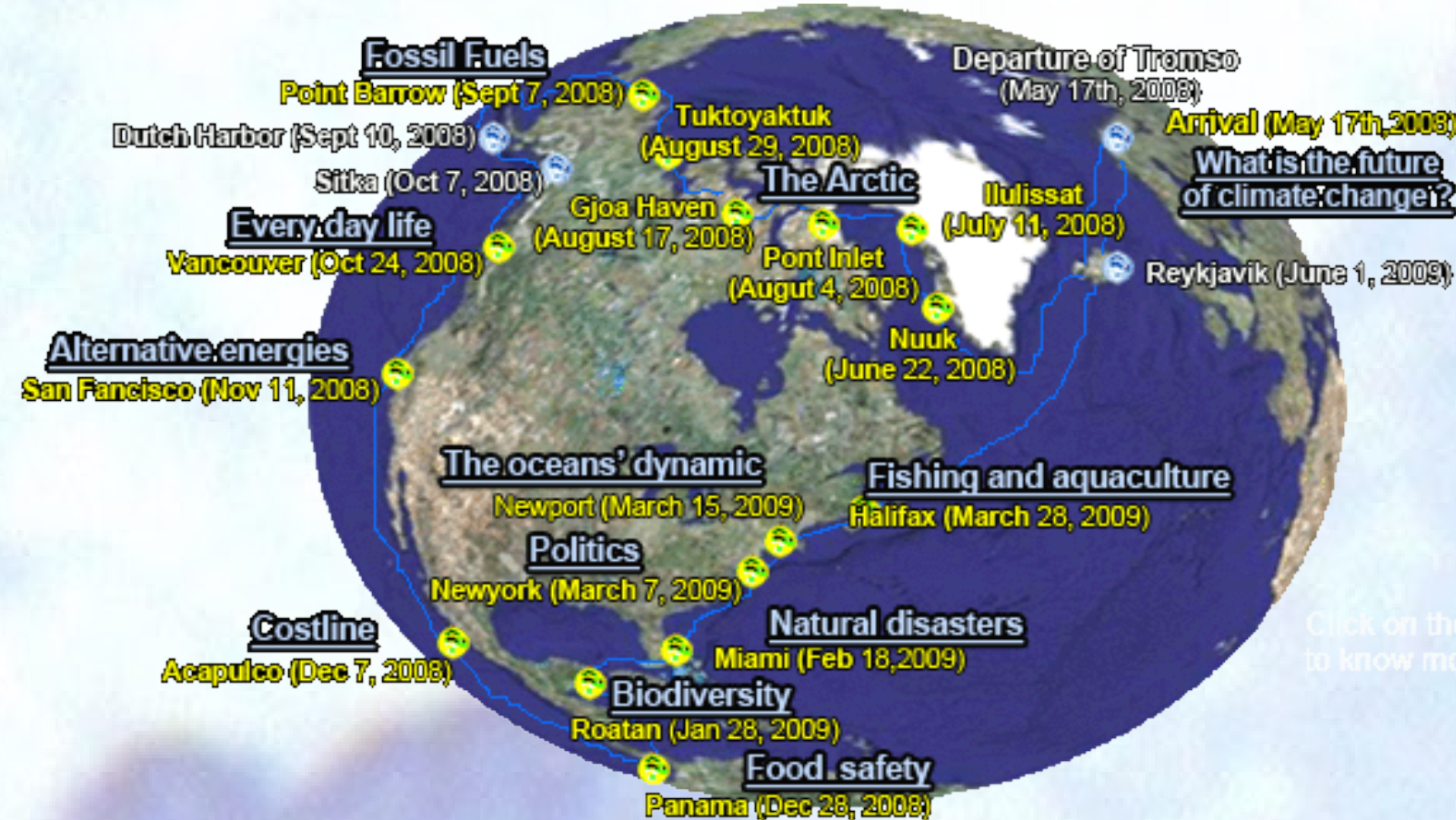


Topics of "Around North America 2008-2009"



The "Around North America 2008-2009" journey around the North American continent was undertaken to understand better the causes and the dangers – and also the challenges – of climate change. Twelve months and 21 ports of call were crossed to address the stakes of climate change on the environment and also on the ecology, the economy, society, institutions and politics. These topics have been considered on the international, regional and local scales, and many sectors of activity were covered.

Themes presented above are approached in order chronological, in the course of the route of the expedition. At each main port of call, a different theme has been tackled. Roundtables, interviews, on-site visits and conferences were so many opportunities to interact with actors of climate change: scientists, political decision-makers, industrialists, NGO's, citizens, artists, etc. These events provided concrete illustrations of the themes under discussion and have constituted a series of testimonies as to the realities of climate change and the solutions that have been implemented to address them.



The Arctic

The journey up Baffin Bay, along the western coast of Greenland, and the Northwest Passage, the northernmost portion of the expedition, gave crew members an opportunity to further their understanding of the effects of climate change on the Arctic, which is the most representative of the climate's evolution at the present time. The movements of the ice sheet have led to drastic consequences for the Arctic ecosystem, notably with respect to Arctic mammals. These disturbances in the ecosystem also present risks as to the subsistence of local populations.

Crossing the Frozen Arctic Ocean allowed the expedition crew to take stock of direct observations of climate change and disquieting signs of changes to come. It has thus set up a first account of the reality of climate change.

Fossils fuels

Point Barrow, at the the northern tip of the state of Alaska, is renowned for its oil activity. This port of call thus presented the opportunity to take a closer look at the question of fossil fuels, in particular oil and coal, and to put these into the context of



climate change and local development. Both the oil and coal industries give cause for concern in terms of greenhouse gas emissions, especially coal, which has seen its production grow in the course of the past few years. Methane hydrates represent also a big deal in this region inhabited by Inuit People.

Everyday life

After this chapter on industry, the expedition went in Vancouver in order to learn more about the contribution of individuals to climate change and to find out about various local initiatives to reduce the population's impact on the trend towards global warming.

This port of call represented the opportunity to hear about innovative solutions geared at individuals who care to reduce their own carbon emissions and to preserve their environment. The crew learned a lot about energy self-sufficient ecological homes, clean transport, etc.



Alternative energies

California's contribution to the world's greenhouse gas emissions is large. San Francisco, however, is also a pioneering city in terms of new sources of energy.

This port of call allowed us to collect information about alternative sources of energy, mainly renewable energy : wind power, biomass, biofuels, etc.

During the stopover, the political and economical aspects of the development of so-called "clean" energies has been broached. Illustrations were drawn from on-site visits acknowledging local initiatives. Silicon Valley, for instance, is intent on becoming a leader in innovation in the field of "clean" energy. This stopover allowed us to learn more about cutting-edge industries in that field.

Coastline

Climate change occasions dangers for the coastline. More that two thirds of the world's population live less than 100 km (62 miles) from the sea, and the trend is growing. Climate change may lead to major direct consequences for shore areas (higher sea level, heightened frequency of tsunamis, etc.). What is at stake here is to seize the magnitude of probable consequences for the shores where population is dense.

Our stopover in Acapulco, Mexico, gave us the opportunity to look into the concentration of activities on shore areas which greatly diminish their population's resilience against climate change. In particular, we tackled the question of tourism and the dangers it represents for local populations at various levels (the disappearance of other economic activities, the erosion of the coastline, the concentration of local populations in areas unsuited for building, etc.). Acapulco constitutes a good example for the study of seaside tourism and of the dangers it represents for the resilience of local population against climate change.

Food safety

The Panama port of call approached an essential facet of the social impact of climate change: the means of sustainable existence for local populations, like the Kuna Indians. Indeed, temperature changes greatly affect the production of the rural communities: crops and animal farming will have to take into account new constraints and look for more sustainable modes of production. Furthermore, climate change will make sea-level rise on production zones and put our water supplies in jeopardy.

This stopover was an opportunity to look into all facets of these threats and to consider the solutions which have been proposed in order to limit risks on the international scale.



Biodiversity

The Roatan stopover was essential to the global understanding of the harmful consequences of climate change on biodiversity. The main threats, to which the oceans' and the land's animal and plant life are exposed, are largely linked to the disappearance of habitats, accidental fishing, marine and land pollution, and intensive agriculture. Their preservation require immediate and innovative action, in order not only to limit or stop the degradation of natural resources and the species which depend upon them, but also to optimize their resistance and resilience.

The Roatan stopover looked into one of the most threatened among ecosystems: coral reefs. Coral reefs here have been over-exploited to a considerable extent, they are bleaching dramatically, but initiatives are increasingly led to set up a sustainable management of the resource and to restore this highly threatened ecosystem: protected marine reserves, repopulation of the coral barrier, artificial coral. All these initiatives contribute to preserving the coral reef and also, and above all, to allowing populations who depend on this barrier to secure a sustainable way of living.



Natural disasters

The Miami port of call provided the opportunity to illustrate one of the immediate physical consequences of climate change, the cost of which is among the highest for its citizens. The heightened frequency and power of hurricanes, along with violent floodings in the area, are direct consequences of climate change. For the local population the toll is high, and government institutions, confronted with hard costs, are learning to evaluate and manage the risks.

This stopover has zeroed in on the risks which climate change bring in the matter of natural disasters and on the solutions that have been considered to reduce these risks.



Politics & Business

This stopover, in the heart of a New York City, permitted us to take stock of the answers that the political and business world have provided up against the risks and the stakes linked to climate change. Conventions that govern certain economies on the international scale already exist. The best known among these is the Kyoto Protocol on the reduction of greenhouse gas emissions, and the carbon market. But numerous other agreements and markets on the different aspects of climate change will have to exist.

How do they work ? Who has agreed to abide by them ? What is their impact ? What of their future ?

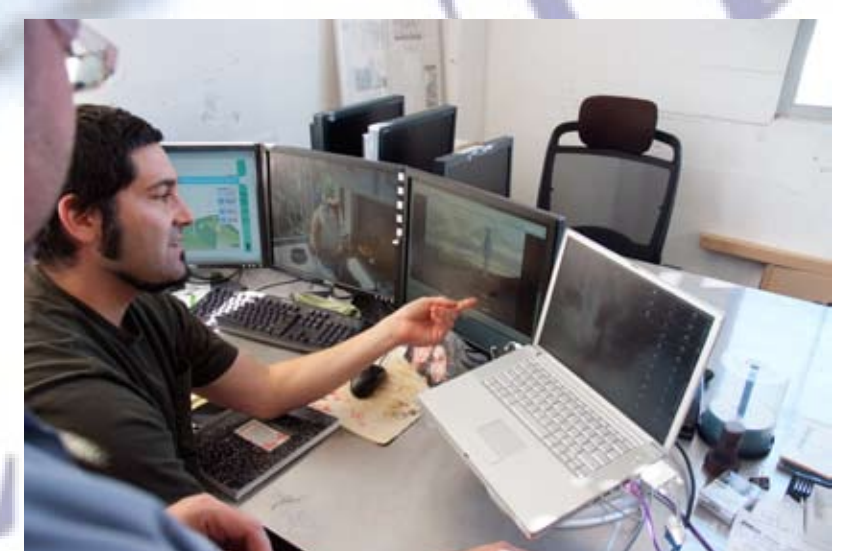
The ocean's dynamic

The oceans suffer directly from global warming. They are home to a very particular ecosystem which has been brought to the fore at this port of call. To the immediate risks (acidification, rise of the sea level, etc.), we may add more indirect and lesser known consequences that affect deep ocean currents on the scale of the whole planet (the Gulf Stream, for example, and the thermohaline circulation). The CO₂ isotopes tracking is also a big challenge, as it allows scientist to determine which part of carbon dioxide stocked in the ocean comes from natural phenomena and human activities, so we can say if we are involved in climate change.

This stopover in Newport, Rhode Island, focused on the consequences of climate change on the oceans, as well as paleo-climatology, and draw conclusions as to economic activity and adaptation.

Fishing & Aquaculture

The Halifax stopover has led to the an examination of the the consequences of climate change on the fishing industry and aquaculture. Scientists agree to say that climate change will exert considerable influence on the supply and the distribution of marine resources. Fishing runs the risk of being greatly altered, if not altogether threatenend as an activity – fishing, which provides food for a large portion of the world's population and which is



alarmingly endangered by generalized over-exploitation, must find new ways so as to become a sustainable activity. This port of call also addressed the topic of aquaculture and its future. Aquaculture constitutes one of the main stakes of development in decades to come and is expected to provide a necessary complement to fishing, which is increasingly in peril. But aquaculture must also face major challenges in order to grow while taking into account environmental matters and constraints generated by climate change.

What is the future of climate change?

Upon arrival in Tromsø, at the conclusion of the expedition, issues will be handled that will offer a developed and multilateral view of the risks of climate change and the solutions to it that have been brought forward. What can we hope for the future? Presently, disagreements among traditional powers (United States and Europe) as to how to best handle the problem, have rendered efficient action difficult. Also, what is the position of emerging powers like China, India and Brazil? The arrival of the expedition have us conclude on one year of travel and encounters around the theme of climate change. The expedition crew, keenly aware of the issues linked to climate change and enriched by a one-year journey through the facets of the problem, will become a spokesperson for the expedition and will participate in events in order to share the experience and its results with a wide public.



We also had scientific programs on board during Around North America Expedition

Emilie Guegan, a student from the University Center of Svalbard (UNIS), was involved in the Arctic part of the sailing through the Northwest passage, realising different sampling for several UNIS research project and collecting data and observations on the state of the Arctic Northwest passage in summer 2008.

This program was realized in the frame of the International Polar Year 2007-2008 and daily observations were made concerning temperature, wind and sea ice condition as well as an inventory of the fauna we have encountered.

The Around North America Expedition was a great opportunity to observe and report the current state of this passage before the arrival of commercial ships, which could then serve as a comparison basis to future studies.

Pierre Vanloot, from the Chemistry Department of the Institute of Technology of Marseille (France), came on board between Ilulissat and Gjoa Haven to make measurements on water and sediments. Twenty students were involved in this project.

INTERNATIONAL 2007-2008 POLAR YEAR

