



## Opening and Introduction

**Isabelle Duvaux Bechon**, Head of Future and Strategic Studies, Director General's Policy Office, European Space Agency (ESA)

I am the Head of Future and Strategic Studies Office at ESA, in charge of the General Studies Programme, the Advanced Concept Team and the coordination of transverse intra-directorate activities. It includes Arctic as we see today, but also energy and exploration that are activities that are not allocated to one directorate and therefore with a need for coordination between directorates.

Today's workshop was triggered by a certain number of events. There is a lot going on in the Arctic these years. For us it started with the Stockholm workshop in 2009 where a certain number of recommendations were given particularly to ESA regarding the needs for the Arctic. Also with a communication and a workshop of the European Commission, that is also interested by the subject. In January this year our Director general decided to create an inter-directorate working group (IDWG) to study the subject. We have representatives from seven different directorates interested in this IDWG and the mandate is to review internal plans so that each one of us knows what is going on, review the plan of our partners, member states and international partners and identify potential new actions that would be needed.

Why? Because many of our member States are concerned directly or indirectly by the Arctic Region. There are many different themes that are involved going from environment and climate change to impact on human activities and favouring and supporting human activities. For us space is a tool. It is not a means, it is not a solution to everything, but it is a tool, and we want to make sure that the ones who will develop activities and the ones who will work in the area will know what the tool can bring about, we want to make sure we can understand the needs and see whether we can bring something more in the future.

The process of our working group - We started with information exchange so that we were sure of what was going on that had a link to the Arctic. We got points of contact in interested member states from the Council delegates (equivalent to Board of Directors) and we had bilateral meetings with each one that was interested. We presented the status of the work to our June Council and they have supported the fact that we must hold a workshop – the one that is being held today - to know a bit more about the

needs in the area and to listen to the users. It is not a workshop where you will learn what ESA is doing. It is a workshop where ESA is present and will learn about what are the needs, what are the plans, what are the ideas, so that then we can work on what we can do to help.

So for the workshop today you will see that the participant list is diverse – experts from certain number of member states, representatives of the users, of ministries, the European Commission, the European Parliament and some of the ESA experts, members of the working group, who are here to listen to the real needs. So that we don't invent what you would need for the Arctic but rather derive something from what you really need.

**Wouter Veening**, Chairman / President, Institute for Environmental Security (IES)

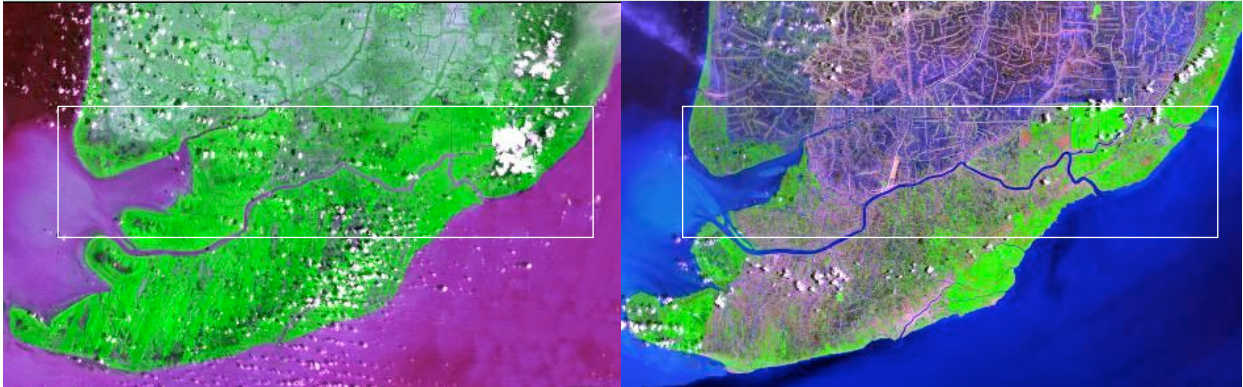
Environmental Security for the IES is the capacity of the environment to sustain essential services or functions for the survival and well-being of mankind and nature. They are at the basis of food security, water security, energy security, shelter, etc. If they breakdown there may be competition over scarce natural resources, there may be migration, there may be all kinds of other effects and there may be the possibility that there are violent conflicts. So our security concept is ranging from direct environmental security to the end – the hard security issue, where the military may come in.

We attach great importance to remote sensing to identify risks to environmental security as you will see in a study which we will be publishing very shortly about the Southern tip of Vietnam, the Southern part of the Mekong Delta. Here originally there are intact mangroves which play a very important role in coastal defence against sea level rise and they are important breeding grounds for fish, etc. So they perform very important environmental services.

Now mangroves have been transformed into shrimp ponds which are a lucrative business. Money can be made by breeding shrimps and exporting them. There is a big global market for this, but it is at the cost of the environmental services that mangroves provide. Showing this transformation is in essence how we use remote sensing – identify the risks. The major risk here results from sea-level rise which in this part of Vietnam is a serious threat, especially since the defence mechanisms are being reduced.

Being headquartered in The Hague we attach great importance to International Environmental Law and international law in general. If you for example had a contract with the local communities to preserve the ecosystem services which are rendered by mangroves, you need to know whether those contracts are being fulfilled or complied with, or not. So remote sensing can also play a role in the compliance and enforcement of International Environmental Law through for example local contracts which we are pioneering in other parts of the world.

## Nam Can Study Area, Mekong Delta



White rectangle = Study Area. 1979 mostly mangroves

Vegetation/mangrove areas (green),  
Bare land/agriculture/settlements (grey) and  
Shrimp farms/water (magenta),  
Clouds (white)

Landsat MSS 1979, bands 4-7-5,

White rectangle = Study Area. 2003 more shrimp farms

Vegetation/mangrove areas (green),  
Bare land/agriculture/settlements (sandy pink or red) and  
Shrimp farms/water (black to blue),  
Clouds (white).

Landsat ETM+ 2003, bands 7-4-2,

Images help greatly to id and communicate the issues in the study area

This is why we appreciate very much the cooperation ESA has offered us. First of all we are conducting an ESA-commissioned study on the evolution of EU external action in the fields of climate, environment, development and security. The report will include suggestions or new opportunities for the contribution of Earth Observation, Satellite Remote Sensing in support of European external policies and programs.

What is very important here is what is coming out of Cancún – the climate change negotiations where the EU is playing a leading role and the outcome of the Cancún negotiations will be important for the follow –up of EU policies in the field of climate change and thus also for the need for remote sensing and satellite earth observation to support those policies.

Second part of the cooperation is here today on the Arctic. We are of course happy to work from an environmental security perspective on the Arctic which is considered to be one of the major global climate hotspots – the area where the ice cap is melting the fastest: it is retreating and the cap itself is thinning. There is a major risk involved in the melting of the Greenland glacier with its impact of sea level rise.

There are people saying there is so much oil and gas there that we may postpone the “peak oil” situation, but there are others who say that Arctic oil and gas will become so expensive that the market will not be willing to pay for it.

There are optimists about the shipping aspects of the ice cap melting – the North West passage. This countered by sceptics since you need new crews, new training, new ships, etc.

There are risks as well as opportunities. Satellite information will have to play a key role in both cases.