Environmental Crimes
Joint Workshop ESA-JRC

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Joint Research Centre

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Session 2: Perspectives from End Users

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Institute for Environmental Security

The Hague, International City of Peace and Justice (and Security)

The first two international peace conferences were held in The Hague in 1899 and 1907.

Following these conferences, it was decided to build a permanent location dedicated to the development and study of international law as an indispensable instrument to promote peace and justice.

The Hague is now considered to be an International City of Peace and Justice – in the past Security was explicitly added (note that that the Peace Palace has a large gate).

Many also refer to the Hague as ”The Legal Capital of the World”, because of the important international courts seated in the city: *The International Court of Justice* (ICJ) the highest legal institution of the United Nations, adjudicating conflicts and issues between states, *the International Criminal Court* (ICC) applying justice to individuals who have violated the Statute of the Court (the Rome Statute) and *the Permanent Court of Arbitration* (PCA), open to all kinds of parties seeking a solution for their differences via arbitration.

The Hague has also housed many temporary courts, such as the ICTY, the International Criminal Tribunal for the former Yugoslavia, which has convicted several of the major individuals involved in the war in the 1990’s in Former Yugoslavia.

Both the ICJ and the PCA have handled several environmental or environment-related cases, <u>but that has not yet been the case with the ICC</u> – more on this later.

The Institute for Environmental Security (IES) and Environmental Crime

- IES' statutory objective is to "**Advance global environmental security by promoting the maintenance of the regenerative capacity of life-supporting eco-systems**.";

- "Life" means not only human life, but also the other life forms on earth, recognising the eco-systemic interdependence of all life;

- This implies for IES that anyone who is willingly and knowingly harming the integrity of the eco-systems around the world is, at least morally, committing a crime;

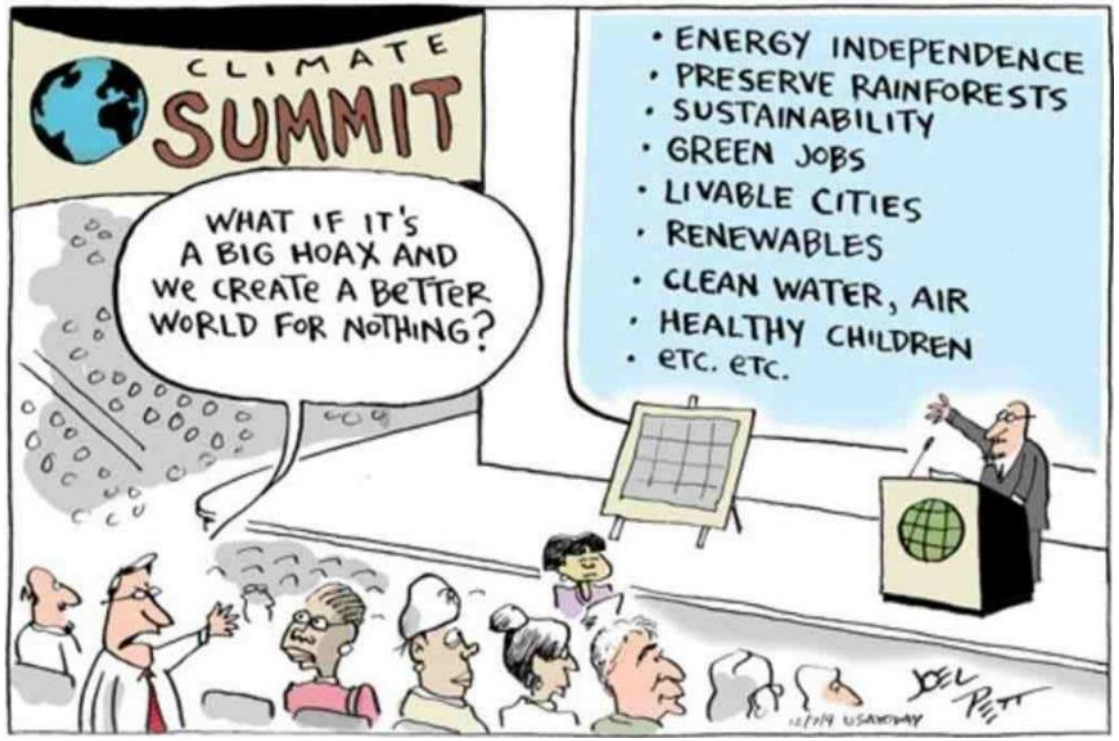
- While "willingly" and "knowingly" are subject to different interpretations and often of heated political debate, IES attaches great importance to the role of (peer reviewed) science-based evidence and takes position against those who deny the scientific consensus and who say on climate: "the climate problem does not exist, and if it exists, it is not serious, and if it is serious there is nothing we can do about it."

- Satellite-based earth observation, as performed by the European Space Agency and many colleague institutions around the world, is indispensable – and increasingly so – to identify both the harm done to eco-systems and those culpable of doing that harm;

- **Environmental crime is a dynamic concept** and evolves over time as more scientific information about the environmental impact of human activities and the production, use and disposal of substances become available – substances like DDT, asbestos, PCBs, several pesticides were considered benign until more evidence about longer term health and ecological effects became available, which will or, at least, may lead to the criminalisation of the production and (certain) uses of these substances.

- IES attaches great importance to the further elaboration and application of the *Precautionary Principle*, i.e. do not to wait for full scientific certainty – if that ever is epistemologically attainable – before taking action, especially of course when that action would entail “no regrets” measures. Of course, in a world where interests differ as to time and place also positions on what constitutes regrets differ.

- Remote sensing encourages us to think globally, and from this perspective the necessity of the precautionary principle becomes more obvious, as we are better able to understand the potential scale of the impacts of our decisions.



A petition to criminalise climate denial was rejected in the UK Parliament in 2019 as it was considered unclear what kind of action such criminalisation would imply.

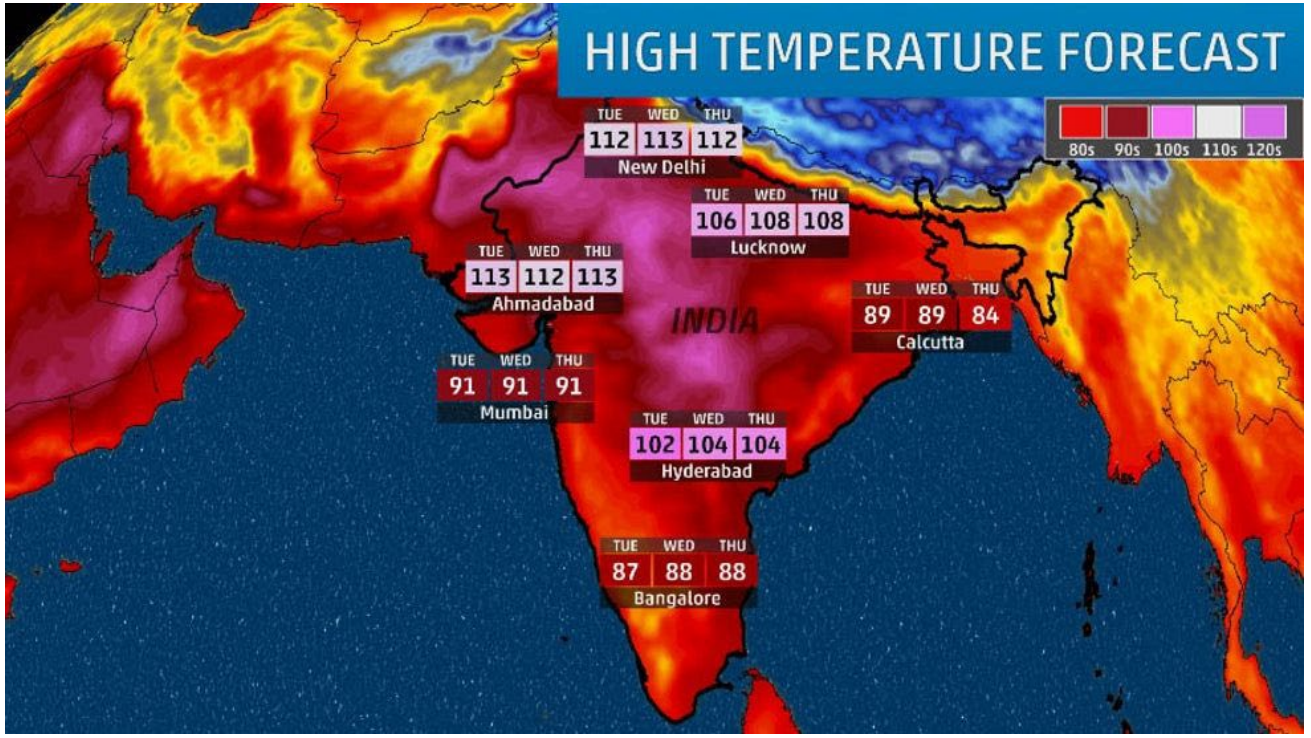
The petition was summarised as follows: Climate Change is going to destroy our future if we continue on our current path of ignorance.

Denying the Holocaust is, rightly, in many countries illegal, as over 6 million people died. Climate Change will kill hundreds of millions, but this time we still have the opportunity to do something.

Indian heatwave kills dozens over summer, media says nearly 25,000 fall ill

By Jatindra Dash and Tanvi Mehta

June 3, 2024 6:25 PM GMT+2 · Updated 3 days ago



*Art. 55 of the Protocol I to the 1949 Geneva Conventions requires combatants to protect the natural environment against **widespread**, l**ong-term** and **severe** damage and prohibits means and methods of warfare which are intended or may be expected to cause such damage to the natural environment.*

IES and Ecocide During War and Peace

This extremely important addition of June 1977 to the body of international law as it relates to war and armed conflict introduces the key dimensions of environmental damage to be prohibited during those situations, namely **wide-spread**, **long-term** and **severe** damage to the natural environment. These aspects stand also in the centre of the definition of ecocide to be applied in non-war situations.

The historical tragedy of the International Criminal Court is that environmental crime in peace time, with the same dimensions, was part of the Rome Statute of the ICC when it was negotiated in 1998, but was shoved off the table following a set of highly unfortunate circumstances.

The definition survived the negotiations in 1998 on the Article 8 of the Rome Statute, War Crimes, and now stands as art. 8(2)(b)(iv), reading as follows:

> *"Intentionally launching an attack in the knowledge that such attack will cause incidental loss of life or injury to civilians or damage to civilian objects or* ***widespread****,* ***long-term*** *and* ***severe*** *damage to the natural environment which would be clearly excessive in relation to the concrete and direct overall military advantage anticipated;"*

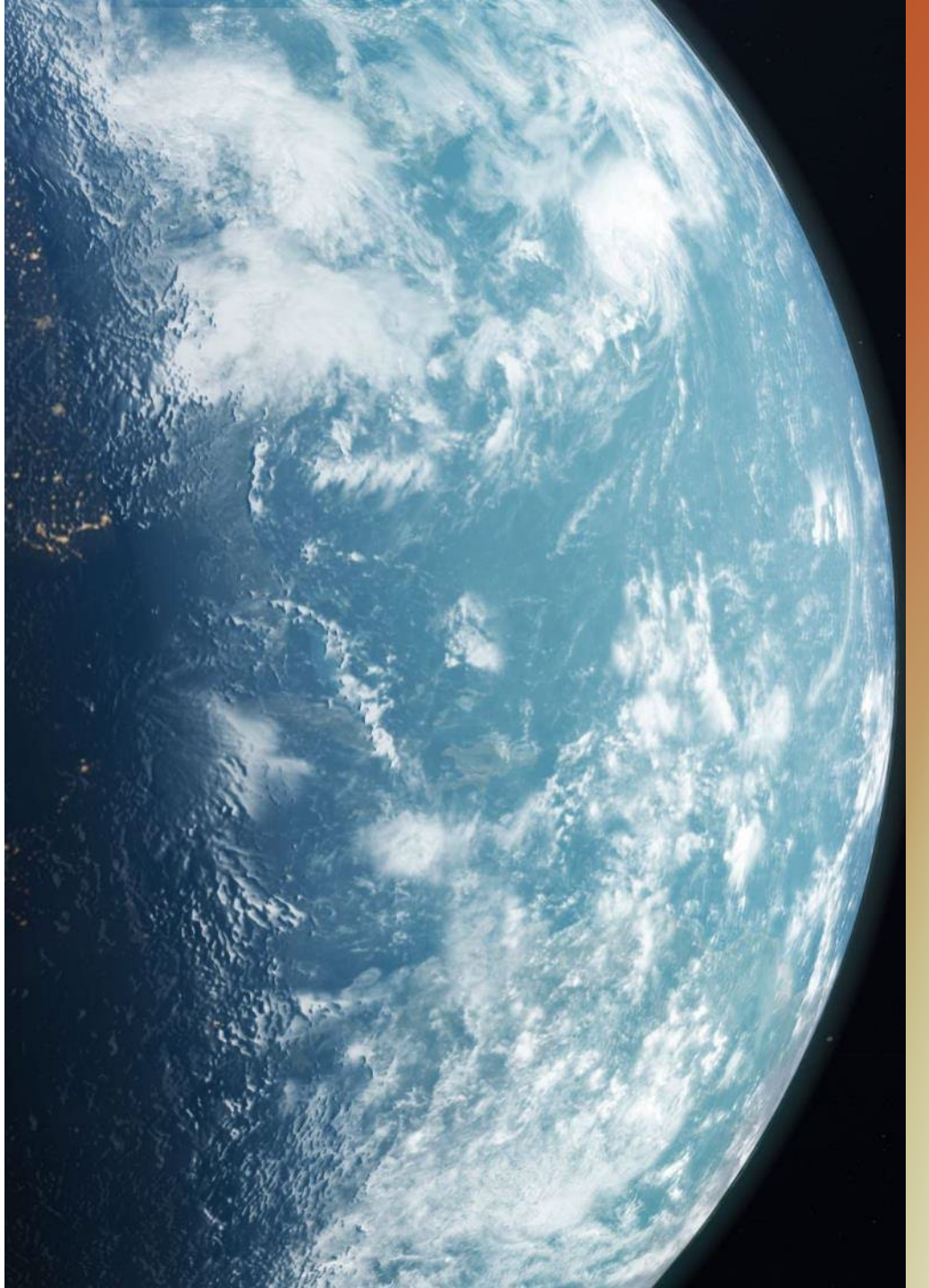
In order to determine what constitutes widespread, long-term and severe damage, satellite-based earth observation plays a vital role. For example, soil and groundwater pollution typically is a form of such damage and was addressed recently by an ESA event in March this year here at ESRIN: https://www.eo4soilprotection.org/

Again, this is a matter of scale – remote sensing provides us with the capacity to "step back" and see how widespread and long-term an environmental harm really is. Severity can be harder to judge remotely, however.

Satellite-based earth observation, as performed by the European Space Agency and many colleague institutions around the world, is indispensable – and increasingly so – to identify both the harm done to eco-systems and those culpable of doing that harm;

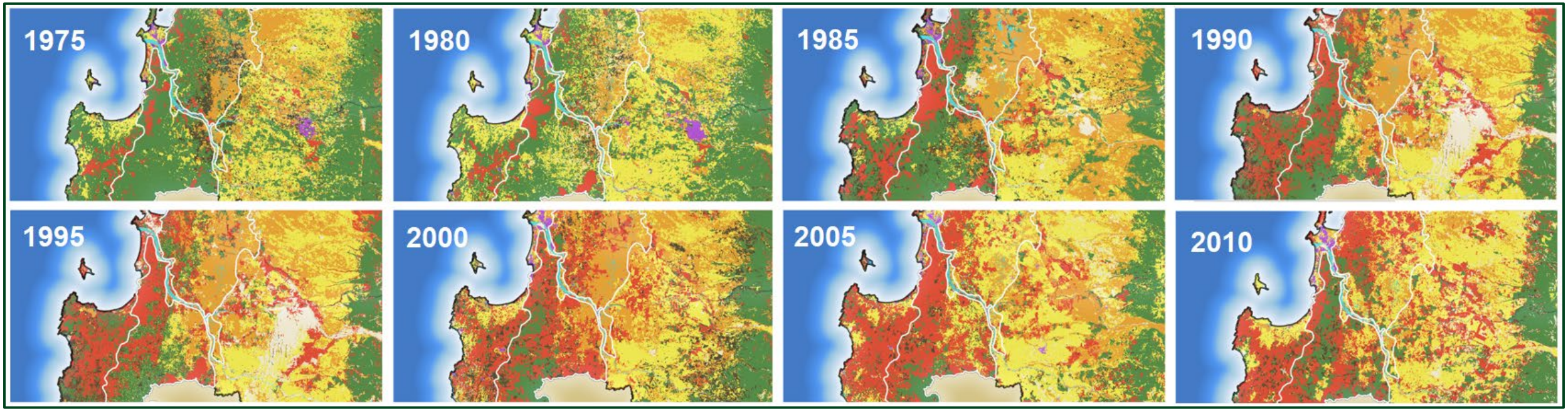
Many environmental harms take place beyond the scale of human spatial and temporal understanding. It is hard to understand a system – say, an entire forest – from the inside, and it is difficult to notice slow and subtle degradation over many years. Luckily, remote sensing offers the possibility to take a step back, so to speak, and see the whole.

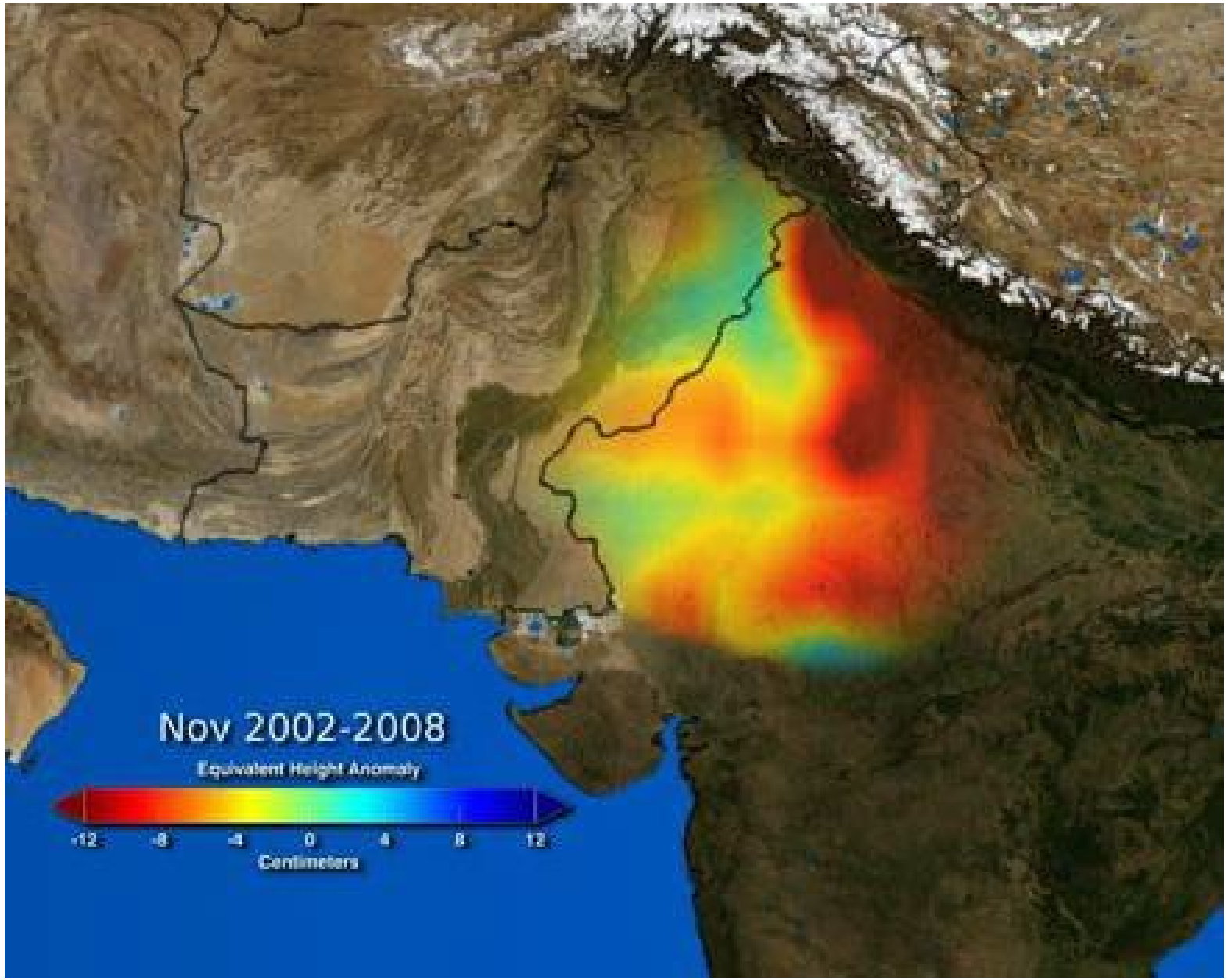
The following examples demonstrate some of the ways in which we use remote sensing at the IES.



Ecocide in Chile:

Remote sensing has proven useful to us while researching potential cases of Ecocide. For example, the timeseries maps above, derived from historical Landsat imagery by Andreas Braun, demonstrate that illegal cutting of near-natural forest and its replacement by industrial monoculture forestry plantations of highly flammable species has been widespread in the Biobío region of Chile – a region in which the Rights of Nature Tribunal recently declared that ecocide has been committed after the massive wildfires of 2023.





Groundwater Depletion in India:

The GRACE technology I find one of the best applications of satellite observation technologies around: it measures the levels of groundwater depletion by observing differences in gravitation. The less groundwater in Northwest India, the more agriculture becomes dependent on surface water as the monsoon becomes less reliable because of climate change.

If the surface water comes from tributaries to the Indus River, it may deprive Pakistan from essential water. As both countries have a history of territorial & religious conflicts, the Indus River water may become a zero-sum game between two nuclear powers.

This situation is a major focus of IES and its Global Military Advisory council on Climate Change (GMACCC, www.gmaccc.org). GMACCC includes high-ranking military members from India, Pakistan and Bangladesh who discuss amicably the many environment-related conflicts and tensions between the countries of South Asia with a view to come to durable and peaceful solutions.

Climate Change
& Security in South Asia

Cooperating for Peace

GMACCC Paper n° 2 | May 2016

Global Military Advisory Council on Climate Change

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Gold Mining in the Guiana Shield:
VENEZUELA
GUYANA
SURINAME
FRENCH GUIANA
COLOMBIA
GUIANA SHIELD
BRAZIL
PERU
ECUADOR
TRINIDAD AND TOBAGO
ARUBA
CURAÇAO
DOMINICA
SAINT LUCIA
BARBADOS
GRENADA
ANGUILLA
MONTSERRAT
N
S
E
W

Spatial distribution of forest cleared for mining expansion in the Guiana Shield during the period 2000-2013 (red). Result based on semi-automated analysis of more than 2,500 satellite images (MODIS, Landsat and ALOS PALSAR).

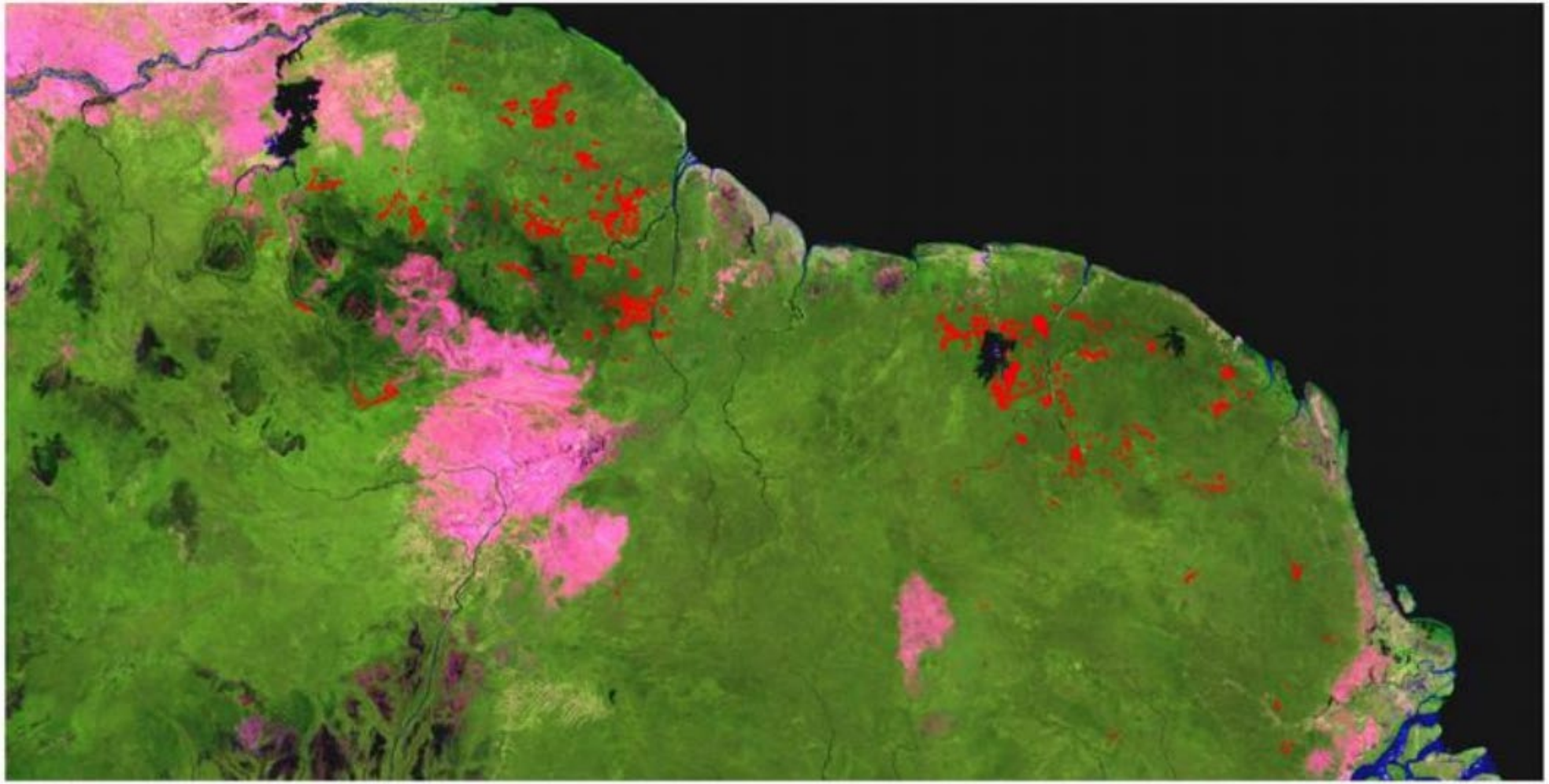


Image processing: SarVision. Satelite imagery courtesy of USGS/NASA, JAXA/METI.

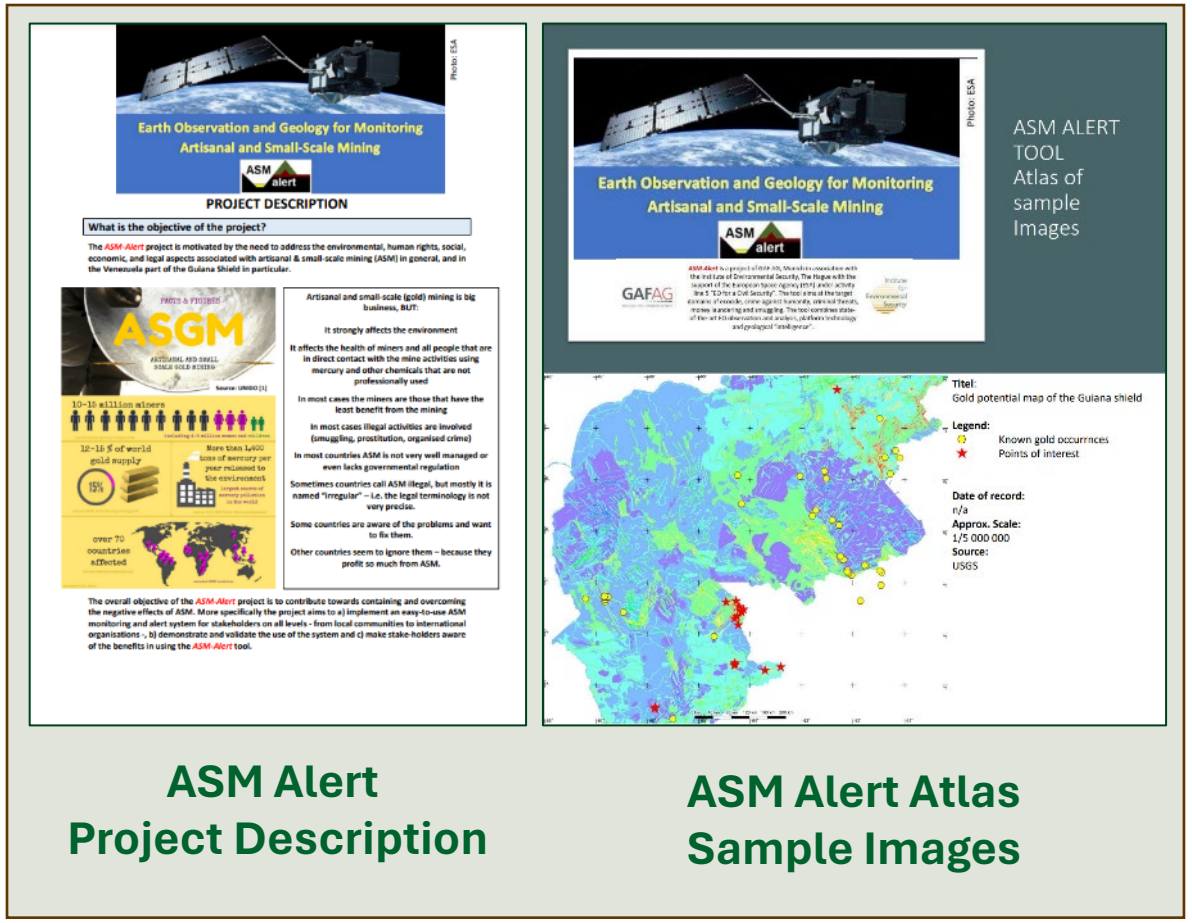
The value of the selected area of interest is that Venezuela is a mega biodiversity country and an important part of the Amazonian region, which plays a crucial role in regulating the global climate. As with biodiversity in Colombia, Brazil, and the whole of the Guiana Shield, Venezuela is home of unique species of fauna and flora. One of the areas, which is of great importance to the whole world is the Canaima National Park - a World Heritage site - spread over 3 million ha in south-eastern Venezuela reaching the borders with Guyana and Brazil. In addition, this area is the home of several indigenous people, residing in and protecting this heritage.

The overall objective of the ASM-Alert project was to contribute towards containing and overcoming the negative effects of Artisanal and small-scale mining (ASM). More specifically the project aimed to:

a) implement an easy-to-use ASM monitoring and alert system for stakeholders on all levels - from local communities to international organisations,

b) demonstrate and validate the use of the system and

c) make stake-holders aware of the benefits in using the ASM-Alert tool.



ASM Alert Project Description

ASM Alert Atlas Sample Images

Title:
Cyanidation Plant, Northern Venezuela

Legend:
Large rectangular ponds partly filled with muddy soil, partly with water, with conveyor belt coming from the houses to the North and distributing tailing over three pourings.

Left and upper left: soil heaps with 5-10m diameter, transported via white piste into the leftmost house.

A mineral processing chain is recognised: Open soil goes into the leftmost house and the tailing leaves the rightmost house in the image to be deposited in the pond.

Date of record: 2021 Nov 20
Approx. Scale: 1/ 1,000
Source: World View 1, PAN chromatic

Environmental Crime and the EU

An important observation on environmental crime has been made by the consortium (including IES) which prepared the study EU Action to Fight Environmental Crime (EFFACE, www.efface.eu), that prosecutors find it easier to prosecute environmental crime if it is linked to corruption, bribery, fraud, forgery or falsification of documents as direct environmental pollution or matters of remote illegal deforestation are often difficult and costly to detect compared to these “white collar crimes”.

Illegal gold mining in the Guiana Shield region of the Northern Amazon was one of the EFFACE case studies showing satellite-derived maps of mining locations. This case study found a follow – up in the ESA funded project carried out by GAF, a leading earth observation company located in Munich, and IES on the extremely problematic artisanal and mostly illegal gold mining in Venezuela – see below.

The most important international environmental crime policy document is the renewed EU Environmental Crime Directive which came into power on 26 May 2024: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32024L1203

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of 11 April 2024

on the protection of the environment through criminal law and replacing Directives 2008/99/EC and 2009/123/EC

The criteria of the Protocol of 1977 to the Geneva Conventions and the ecocide definitions, namely to prohibit severe, long-term/irreversible and widespread harm to the environment are mentioned in art 21 of the Preamble;

Under art. 3 a list of 20 activities is mentioned which qualify as criminal offences; this list is not static and will be amended as more evidence of environmental harm becomes available;

These offences have of course to be carefully studied by ESA to see how satellite-based earth observation can contribute to the identification, prosecution and sanctioning of these offences;

Here one of these offences is selected as it relates to the illegal gold mining project mentioned above, Art 3 (d): the manufacture, use, storage, import or export of mercury, mercury compounds, mixtures of mercury, and mercury-added products where such conduct is not in compliance with the requirements set out in Regulation (EU) 2017/852 of the European Parliament and of the Council and causes or is likely to cause the death of, or serious injury to, any person, substantial damage to the quality of air, soil or water, or substantial damage to an ecosystem, animals or plants;

The Endgame

By expanding the spatial and temporal scale of our perception and allowing us to examine regions which are too large, impenetrable, or dangerous to study on the ground, remote sensing is the tool which helps us to get the job done.

Policy is necessary, providing us with the legal framework to operate within, however it is not sufficient to bring the perpetrators of environmental crime to justice - our ultimate goal.