The ongoing democratization of access to space

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Edgard Ploman predicted it nearly half a century ago : **"300 years ago, those who controlled the seas controlled the world. Today, it's about space".**

In June, a historic step was taken by the United States in the race for space, generated by several geopolitical and commercial factors. It is also a major event for all mankind, for whom space and the universe constitute a common heritage.

Some 13.7 billion years old, space remains 95% unknown. It is endowed with some one hundred trillion billion planets in the universe, including more than one hundred billion in our galaxy and nine billion habitable planets.

In addition to Russia's traditional competition, there is also the recent and dazzling competition from China, which is becoming the new emerging space power, and the penetration of the space market by private companies authorised by the Space Act adopted under the Obama presidency. Added to this, with the creation of a Space US Force by President Trump, all the elements were in place for Space X to achieve this unprecedented feat the night of May 30.

The private company Space X, chaired by businessman Elon Musk, successfully launched its first manned flight with its Dragon rocket to the ISS, the International Space Station, last night from the American launch base at Cape Canaveral instead of the Russian one, defying all the scepticism and criticism levelled at it.

Already in December 2015, the billionaire at the head of a start up and Tesla's boss, passionate about adventure, space and digital technology, took off his reusable Falcon 9 launcher to deliver satellites into space at reduced costs and thus succeeded in recovering the first stage of the spacecraft; a first in the history of space rockets. A year later, the Dragon launcher delivered supplies, food, water and equipment for scientific experiments to the ISS crew.

Today, for the first time, this reusable rocket has carried with it two American astronauts.

At the source, the tenacity of a man surrounded by his team, driven by considerations related to his personality, the passion of the unknown, his passion for space tourism, and the certainty that our planet Earth is doomed to climate chaos and a future and probable scarcity of natural resources. It is in this perspective that he plans with NASA to colonize the Moon by sending a human colony there in 2024

and in the longer term the planet Mars in 2033. The feat of this month is part of that project.

At a time when galloping demographics have reached some eight billion people on Earth and when the first global red alert on biodiversity loss was issued last year, when the implementation of the objectives of the Paris Agreement on Climate is more than disappointing, when natural and health disasters are more than violent and on the rise, the impetus towards the exploration of distant worlds is proving to be a blatant reality.

In addition, there is the mercantile prospect of exploiting and marketing lunar mining resources (rare metals, helium) by 2050, representing an additional market of more than $100 billion, but also perhaps those of realizing the dream of a democratization of access to space for all.

In this context, with its Internet for All project, Space X aims to put into orbit through its falcon reusable launcher, a constellation of more than 12000 satellites with the consent of the U.S. authorities, designed to provide Internet access to broadband to the whole world, part of which has already been sent. (1)

Space, an undeniable driving force for sustainable development for the benefit of all countries.

With the growing capacity of space technology, the benefits for sustainable development are increasing.

From purely military and geostrategic objectives, the stakes have mainly become economic and for decades, satellites have been constantly improving our daily comfort. Space is increasingly "useful." The services offered by space technology meet a wide variety of increasingly diverse and sophisticated needs.

Whether it be satellite telecommunications, on which many fields of the economy are increasingly dependent, navigation systems, tele-medicine and tele-education in remote rural areas, or earth observation in the fields of agriculture, water and the oceans, land use planning, meteorology, or the fight against climate change and its extreme catastrophic disruptions which constitute one of the most pressing problems for Humanity and for our planet Earth, in particular against drought and desertification in Africa.

Investment in the space sector will experience very strong growth, particularly in emerging countries.

The growing enthusiasm of all countries and many private investors, the innovative and cutting-edge technological advances and the growth of the space industry faster than ever before, that of digital techniques, robotics, the development of increasingly sophisticated, miniaturized and lower-cost micro or nano satellites and micro

launchers, the projects for reusable rockets further confirm the trend towards « low-coast space ».

The economic dynamics in the space sector are in the process of being reversed, giving rise to major challenges, particularly with regard to the question of the sustainability of these investments and the legal stability assured to private investors

Never before has such progress been made in this field.

The new leitmotiv is now illustrated by more use and less technology.

Satellite orders increased considerably in 2018, in application of the United Nations recommendations for strengthening synergies, whose objective of the "Space 2030" programme is to make space activities one of the drivers of the 2030 Sustainable Development Agenda to achieve the 17 Sustainable Development Goals (SDGs), thanks in particular to low cost space (2).

Thus, among the countries that have recently entered the sphere of emerging space players, we can mention Morocco, with the launch of two earth observation satellites enabling it to provide sovereign control over the acquisition of satellite images, and the United Arab Emirates with its « Kalifa Sat » space exploration project, its Hope mission to send a probe to Mars on the night of 19-20 July, and the plan to establish a Martian colony in 2117 (3).

The Hope probe was successfully launched three days ago from the Japanese Space Center in Tanegashima. It is expected to reach Mars in February 2021, on the occasion of the UAE's fiftieth anniversary.
But beyond the realization of the first interplanetary mission carried out by an Arab nation jointly with the United States, beyond the mission to analyze the Martian atmosphere and monitor the evolution of the climate of the Red Planet with high and new scientific objectives, it is the renewal of science, human knowledge and knowledge in the Arab world, the scientific motivation of the youth, as well as the diversification of the Emirati economy, that this country is pursuing.

As members of the newly established Arab Space Organization, which brings together 11 Arab States, they are working to develop national laws and establish appropriate space programmes.

As for the African space market, led by South Africa, a pioneer in this field, it has enormous potential and currently represents annually over $7 billion US.

Already, between 1998 and 2019, 32 satellites have been put into orbit by eight African countries. The forecasts bring the growth rate to more than 40% in the next five years for exceed $10 billion by 2024 (4).

This is subject to the economic impact of the current Covid 19 pandemic.

The attractiveness of the Arab and African market for private investors is considerable and the space strategy of the African Union or Agenda 2063 on track.

In the face of this legitimate excitement and enthusiasm, of the tenfold increase in opportunities making space applications strategic levers which impact on whole sections of the industrialized and emerging economies and faced with the ongoing democratization of access to space, the importance of collateral risks must be kept in mind. These concerns include environmental issues such as space debris, space pollution, the militarization and privatization of space.

For the upheaval in progress and to come is no longer merely scientific, technological, ecological, ethical, philosophical, geostrategic or economic and financial, but essentially legal.

With the New Space Act calling into question the great classical principles of law international outer space treaty, governed in particular by the 1967 Treaty on the Peaceful Uses of Outer Space, which constitutes that of non-appropriation of space, and with the development of new rules of private economic law, of rules related to the multiplication of human capacities in space and to the intensification of space traffic, it is a whole set of values and rules traditional ones that will be shaken, disrupted.

It is essential from this perspective that rules of good conduct be adopted to ensure better safety, responsibility and sustainability of space activities for the common good of humanity.

Sources :

(1) Air and Cosmos. 21/01/2020

(2) Doc.AG/12083. 26/10/2018/73rd session, 26th plenary session. UN

(3) "The United Arab Emirates on their way to Mars with the help of the French" Sylvie Rouat. sciencesetavenir.fr. 16/05/2015

(4) Space in Africa. African Space industry annual report-Africa news. 2019