

Intervention of Viscount Dirk Frimout, First Belgian Astronaut & Chairman of the Euro Space Society

Mister Chairman,

Excellencies,

Ladies and Gentlemen

During the previous days, it has often been mentioned that space research and space exploration is important for our society because of economic, scientific, political and strategic reasons.

In economic terms for example, space industry delivers a considerable contribution to the national economic growth by producing new products. It also is a factor of economic vitality and it leads to innovation and invention, necessary attributes for a future oriented economy.

From the scientific point of view, space gives access to a complete New World. In orbit, a situation of microgravity can be created which allows to study the important but dominant role of gravity and all the parameters that here on earth are hidden by gravity. It allows us to grow crystals and proteins, study new materials as alloys and composites and so on. We can study the human behaviour in space and learn about life and the human being here on Earth. It also allows unlimited observation of deep space, stars, our sun and the planets but also observation of our own planet, with its atmosphere and earth resources.

Space is also important for politics, because it contributes to our security and is often used as a parameter to measure the development of a country.

Less often mentioned, space research and space exploration has also an important educational value. In a society where we have an urgent need for good educated scientists and engineers, this aspect becomes more important and is surely an opportunity we should not miss. It is this point than I would like to elaborate.

This is not something new. The fascination of space attracts many young children and plays an important role in their fantasies and dreams. We as astronauts experience every day the excitement that space can give to young people. Space is motivating and stimulating. It is creative and innovating. These are all attributes that are important for our society, for our economy and for our future.

Space is also easily accessible for young people. Through space you can capture their attention and relate numerous other disciplines to it, which at once change in their mind from boring to extremely attractive.

Already early in the space age, the importance of making use of space exploration and space research in education was recognised by NASA.

In July 1985, NASA selected the first teacher to go into space: Christa McAuliffe. I remember that during the second half of 1985, all primary and high schools in the United States prepared programmes, organised lectures, discussed about space experiments,

about physics, biology, geography and many other disciplines that had some relation to space. There was a general enthusiasm in all the schools and Christa became the idol of so many young kids, much more than popular singers or sportsmen and -women. For the first time a teacher would go to space and teach there to all the kids all over the United States about space.

Space was one of the most successful projects of the United States. They had beaten the Soviet Union in the race to the moon. They had accumulated so many successes, and NASA showed so much confidence and trust in their know-how that all Americans were convinced that nothing could go wrong. The launch finally took place on 28 January 1986. In all schools, this launch was followed live on television.

Unfortunately everything that could go wrong, went wrong that day. The shuttle Challenger exploded after only 73 seconds of flight. Christa McAuliffe was killed together with 6 other astronauts in the accident. It was a disaster for the United States, for NASA and for all the children who were watching the launch in the United States and all around the world. Unfortunately, the experiment with a teacher in space has never been done again.

This was not the first time that NASA made use of a spaceflight for teaching.

I remember that Astronaut Owen Garriott already had given physics lessons in a series of short movies, recorded during his stay on board of the Skylab 2 mission, comparing physics and other sciences studied on Earth with the experience in weightlessness. These marvellous movies however did not have the impact that real lessons from space would have had.

Since then, NASA as well as ESA has produced quite a number of educational programmes for young people. Unfortunately, these programmes did not have the impact they deserved and did not provide the expected success. Space could not penetrate into the school programmes. Somewhere there was always a gap between the provided effort and the obtained result.

I have the feeling that now there is a change coming up and there is an opportunity we should take in the near future.

Our world is changing. Our society is changing mostly as a consequence of the rapid development of technology. The young generation can hardly imagine a world without Internet, mobile telephones, computers or mass-storage devices. They are open for any new technology that comes around.

It is normal that also our school system has to adapt to this New World. Slowly schools are opening their doors for new forms of teaching, and finally space will have an opportunity to penetrate into the classrooms.

The Euro Space Society (the former Euro space Foundation), a non-profit organisation that I chair, has the objective to bring space closer to the young people. During our 12 years of existence, we realised an important number of successful projects. I want to share with you some of the lessons learned.

We were successful in a number of places. But this success was mostly due to the personal commitment of the teachers. Every year we saw the same classes participating at

the different initiatives, we saw the same schools performing activities related to space. A group of highly motivated teachers could inspire their pupils for space activities.

A few years ago, we introduced the “space classes” for school kids. This is one of our most successful activities. The Flemish and French community ministry of education, detached teachers for this project. These educational weeks are organised in the Euro Space Center in Redu. These space classes, during 3 to 5 days, were very much appreciated by the schools and the children. Today, we have nearly 10.000 young people participating every year. Unfortunately, in 2006 year the Flemish ministry of education stopped to support this activity. This is rather difficult to understand because it is compromising the future of what has become a very successful programme.

Every year, we organise a number of contests related to space. We select for example participants for the International Space Camp in Huntsville, Alabama. This year we participate in the Scottish Space Summer School. We even organise with the Belgian federal ministry of science policy parabolic flights in September for some students graduating from high school.

Through these contests, we reach an important group of students who show their interest in space activities. Participating in such a project where they have to perform some tasks, where they can show their creativity and take some responsibility, is very motivating for the youngsters.

I also would like to mention the magazine “Space connection”, edited in Belgium by the ministry of science policy. This publication is of a very high quality. It gives very prompt information and is highly appreciated by young people. Unfortunately, it is not yet reaching enough students. I believe that every high school student should have access to this publication. I understand that this would require an important financial effort from the administration, but by making use of electronic distribution for example, this could be possible.

In Belgium, we have different public centres dedicated to space. I already mentioned the Euro Space Center in Redu. There is also the planetarium in Brussels and recently, “Earth Explorer” in Ostend opened. These are edutainment centres related to space. In an attractive way, children can learn about space flights, astronomy and the Earth.

Access to these centres should be facilitated. It is not a problem for schools of the surroundings to visit these centres. However, it is much more difficult for schools coming from remote areas because of the travel costs. These centres allow young people to learn in a very attractive way. Somewhere it should be possible to give all children an equal opportunity to visit these centres with their schools.

It is with enthusiasm that I applaud the creation of the “Ezero” centres. I think there is great potential here for boosting all the space-related activities.

We hope that the “Ezero” centre in Belgium, that will soon be created, will focus on activities in the schools with the children in collaboration with the existing space centres.

You can but conclude that there are a lot of basic tools available in Belgium to organise the educational aspects of space. However, we realise that we are not yet able to exploit all the potentials of space research and space exploration for schools. There are still some roadblocks limiting the impact of all these good initiatives.

First, there is a structural problem in Belgium. Space is a federal matter; education is a regional competence. Often we realise that there is lack of communication and lack of collaboration between the two levels. I do not have the opinion that space should be regionalised as some in this country claim. I think that it is good that space exploration remains with the federal authority. But it is sure that the educational aspects of space suffer from this duality. I think that it is perfectly possible for both authorities to play a complementary role. Too often inside the Euro Space Society, we had the impression to be the go-between between both levels. It is my opinion that a lot of possibilities were lost in this way.

I often compare the situation with a spaceflight. We are seven onboard a shuttle. Each is selected according to his competence, but this does not mean we are all friends. Each has his qualities and each has his character. But for a mission, we work perfectly together, because of the common goal we have. All personal feelings are pushed to the background in function of the tasks we have to accomplish. Here, education is so important and space is such a great tool that rivalry between organisations not acceptable.

The second roadblock is the school system itself. We Belgians are with reason proud of the academic level of our school system. However, we live in a rapidly changing society and therefore our schools need to adapt. In some way we are making this happen, but it remains very difficult to change a traditional, conservative system. I know that a lot of efforts have been done over the last years to adapt the school system to our society, while taking into account the technological evolution. Nearly every student has access to Internet and has a mobile telephone. But schools are still vertically organised and there is not enough horizontal multidisciplinary integration.

Space projects are by nature multidisciplinary oriented. This is an opportunity for space to make the bridge between different educational disciplines. This happens in the technical divisions where graduating students have to provide an integrated work, often as a group effort. Why not introducing something equivalent in the other sections?

The third roadblock is budget. It is not difficult to convince you all of the importance of education for the future of our society. We always claim we need more technical and scientifically educated people in our society if we want to preserve or increase our standard of living. Most of you are also convinced that space is a good tool to motivate students and to contribute to their education. However, if we want to be effective, we need sufficient financial resources.

Every year, the Euro Space Society proposes a number of projects and a number of ideas to incite the natural interest of children for space. We always have to fight for the necessary budget. I work on the principle that, if we want to do something, we have to do it good. In order to organise an activity and to start up a project, some financial help is needed. We often succeed but we have to rely heavily on private sponsors.

Most of these projects rely on the work of some volunteers. This is very good because we mostly work with very motivated people. However such a project has also its limits, as it is difficult to structure it in the right way.

Another important point is that we astronauts have the easiest access to the youth. Our participation can certainly be better integrated in the different programs, but it is also a

fact that we cannot be everywhere. We are often asked to participate for free. This is usually no problem, but sometimes it is impossible. I think I speak on behalf of all astronauts, when I say that we are willing to contribute but that this is requiring quite a lot of personal effort which sometimes should be compensated.

Let me conclude by proposing a few recommendations.

First of all, we need a clear plan of action. I hope that the Forum of the Prince Philippe Fund, where both the educational sector and the scientific world is present, will come up with some proposals that can be forged in a plan of action.

An important point will be the commitment of all parties. One of the reasons that the available programmes are not used in schools is the fact that some teachers feel uncomfortable with the matter. Sometimes, some of their students with a special interest in space are better informed in the matter. Therefore, teachers need help. Introducing the results of space exploration in the lessons must not lead to a heavier workload for the teacher. The teacher must be provided with all the help he or she needs. Special training for the teachers must be provided. Our space centres can give some help.

Finally, the authorities should commit and foresee some budget in order to allow the realisation of an efficient plan and to develop good educational tools. Space research and space exploration is such a grateful subject to catch the attention of the young people. Space is a marvellous tool to reach and to interest the youth. But to do so, efficient actions supported by a sufficient budget are required.

I would like to conclude by quoting a series of findings a NASA workgroup brought forward on this topic: “space exploration vision offers an extraordinary opportunity to stimulate mathematics, science, and engineering excellence for students and teachers – and to engage the public in a journey that will shape the course of human destiny.”

We can hope that space research and exploration will attract young people to science and technology, the disciplines Europe urgently needs if it wants to realise its Lisbon commitments.