NewsLetter

Hosted by Euroavia Pisa Affiliated Society

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From Newsletter PWG...

Hi EUROAVIAns!

Spring has come with an amazing solar eclipse.. Have you seen it? Here, under the leaning tower of Pisa, it was partial (about 60%), but it was a wonderful sunny day so we could see it very well! :)

However, there are good news from all around Europe: innovative aircraft design, past and future international event, and more again. Go and find out more.. You won't regret it!

All my love,

Valentina Luchetti
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IB report

Dear fellow EUROAVIAns,

It is my pleasure to write an article again after a long time and give you the news from the IB for the past month.

First of all, a very successful Fly-In in Valencia was organized in which almost 40 EUROAVIAns participated! This was the inaugural event of PAS Valencia and it was organized from the 24th of February till the 1st of March. This event marked the first event for 2015 and its success will show the way for the rest of the events that will be organized during this year by EUROAVIAns all around Europe.

The next big news is that the IB Physical Meeting was organized in Valencia shortly before the Fly-In. The IB members had the chance to meet each other again after the AMEAC 2014 in Ankara and discuss together on the results of the work done so far. The fact that this physical meeting was done in Valencia gave the IB the opportunity to participate actively in the Fly-In organized and spend quality time with other EUROAVIA members. The most important topic of this Physical Meeting was the EMEAC 2015 and the preparations needed for a successful and memorable congress.

During the Fly-In Valencia, EUROAVIA had the privilege to attend the UKSEDS National Students Space Conference in the University of Surrey, England where Pia Becker (IB President) and Patrick Lorrig (EYE WG Coordinator) represented EUROAVIA. The conference was very interesting and was dedicated to space technologies where many important and well known scientists and professionals attended the conference. EUROAVIA had a very successful presence there and many new contacts were gained which can be very beneficial for the future of our association.

Last but not least, the final countdown for the EMEAC 2015 in Seville has already started and almost 3 weeks are left for the beginning of one of the most important EUROAVIA events for 2015! The EMEAC is a first-class opportunity for all EUROAVIAns to discover the way that our association operates, make new acquaintances with other members and Affiliated Societies and shape the future of EUROAVIA by taking part in the decision making process. The preparation package of the congress contains all the relevant information that all participants and AS need in order to participate actively and engage in creative conversations that will propel EUROAVIA forward.

I wish you a nice day and I hope to meet you in Seville!

Warm regards from sunny Athens,

Konstantinos Mylonas
IB Secretary

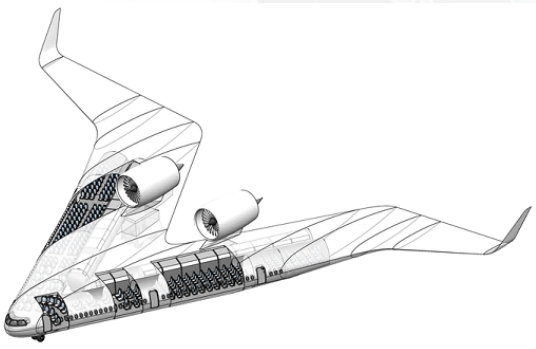
Happening around Europe

Berlin

The Flying-V (not the guitar!)

On Wednesday 4th February the new year was opened belatedly with a cracker! Our very own Justus Benad presented his invention of a radical new aircraft design concept to the public for the first time at the TU Berlin. This is the result of his Bachelors thesis that he wrote at the Airbus Future Project Office in Hamburg. "Why radical?" you may think, "its just a blended wing body" Well, lets take a closer look!

The most distinct difference you may notice is that the aircraft is missing some surface area at the rear compared to the triangular look of a normal blended wing body (BWB). This is due to the idea of incorporating conventional, cylindrical payload sections, which are much easier to pressurise than ellipsoidal payload sections, and thus a lot lighter. This absent surface area also results in a lower wetted area compared to a similarly sized BWB and a favourable location of the CG and aerodynamic centre resulting in good longitudinal stability and low trim drag. Another difference is the location of the engines. Placing them over the main landing gear reduces structural weight and placing them close to each other reduces the moments created when one engine fails. With regard to passenger comfort, the oblique alignment of the cabin and the seats catches the eye. This might sound alarming at first, but in the imagine below Justus reassures us that this is not a problem at all. Oblique seats are already used in business class cabins today!



In terms of functionality this configuration also ticks most, if not all, boxes. Its compatible with existing airport infrastructure and regulations such as jetways, evacuation and maintenance procedures. Compared with the A350-900, conservative preliminary calculations indicate an aerodynamic efficiency improvement of 10

These are only a handful of the plethora of favourable features of the Flying-V. For a detailed insight into the design process, check out the entire presentation here: https://vimeo.com/119263145

With this bold new take on aircraft configuration, Justus wowed the crowd of students, professors and general aircraft fanatics. We wish him the best of luck and hope to see a V soaring above our heads in the not too distant future!

All the best to you all around Europe from AS Berlin! :-)

Matthew Davison
Berlin AS

Deblin

Hello dear EUROAVIAns!

I'm happy to introduce you the new PAS member of Euroavia, EA Deblin.

We are a group of students from Polish Air Force Academy (Polish: Wyzsza Szkola Oficerska SIl Powietrznych) which is located in Deblin city in Central Poland, just 100 km south from Warsaw. Our University was founded in 1925 in Grudziadz and is since 1927 situated in Deblin. Polish army chose this city, because according to a statistics that was the least cloudy place in all Poland (as much as I have noticed it is not anymore). All over Poland, Deblin is known as the cradle of Polish aviation with its nickname School of Eaglets and the most valued aviation school. Our University has long tradition in training generations of Polish Air Force pilots and crew, including World War II flying aces like: Stanislaw Skalski, Witold Urbanowicz, Boleslaw Gladych, Eugeniusz Horbaczewski, and Jan Zumbach.

Having civilian students is still quite new to our Academy. Since 2009 there are following courses for civilians in Aeronautics Faculty:

- Aeronautics and Aerospace with specializations: Pilot Training, Avionics, UAV Aircrafts
- Navigation with specializations: Air Traffic Management, Operation of Airport Ground Infrastructure

Besides that there is also civilian Faculty of National Security and Logistics.

Dualism of our University gives our students the opportunity to get to know civilian as well as military aviation technologies.

Polish Air Force Academy is provided with both flying and ATC simulators, laboratories of on-board equipment, electronics, materials science and control systems. What are most apparent when you are in Deblin are planes and helicopters owned by Academic Centre for Aviation Training to train future pilots:

- 8 Diamonds DA-20
- Diamond DA-42
- Zlin 242 and 2 Zlins 143
- 5 helicopter Cabri G2

Besides that there is also a variety of military aircrafts which are making noise above Deblin:

- Training jets Ts-11 Spark(Polish: Iskra)
- Helicopters Mi-2, Sw-4, Sw-3

Also acrobatic team White-and-Red Sparks is training in Deblin. Sometimes we can also admire other polish air force aircrafts in Deblins sky, such as: Mig-29s, F-16s, Casa-295, C-130 Hercules, Mi-8.

In Polish Air Force Academy you can find a variety of students scientific associations, which gather students with the same interest in specific fields. They can get resources from the Dean and start they own research programs, take part in science conferences, develop their ideas and gain some valuable experience.

At this moment there are a couple of active student associations:

- Association of Avionics
- Association of Young Engineers (they are mainly building models for competitions like Aero Design in USA)
- Association of Application of Mathematics and Physics in Aerospace Industry
- Association of Gliding

All in all, we are an enthusiastic group of students from different courses and specializations, who all are aviation fans and want to take part in creating the future of aviation and the future of our school. We believe that international cooperation is the only missing part in our University and we decided to change it. With help of our Official Senior Advisory Member who is Aleksander Pytel, we are honoured to join Euroavia and start taking steps towards international cooperation which can only bring benefits to all EUROAVIAns and future of aviation.

Jedrek Strzalba
Deblin PPAS

Delft

3 2 1 LAUNCH!

On 6th February 2015, EUROAVIA Delft conducted a water-rocket competition with the involvement of 200 participants making a total of 24 groups and 50 launches!

As always, the Central International Office (CIO) of TU Delft organised the compulsory 4 days long welcome event for arriving international students at campus; the Spring Intro-week. The programme traditionally consists of fun activities such as a city rally in Holland's jewel-case, a pub-crawl drinking the finest ales and the best of neighbouring Belgian beer craft, registration, and a 3-days project work in teams of 8. Whereas this project has always been to design a device to help prospective internationals getting around Holland, it was quite different this time around.

Our executive member, Siddarth Tegginamani, had both the expertise and enthusiasm to set up a small-scale water-rocket competition.

Supported by a former NASA Tour Guide and Intern, Paul Schattenberg, and myself, (a combined total of almost 1000 launches in proficiency), we made the proposal to CIO in early December, and were quickly approached with a request to scale it up.

We ended up building several launchers, presenting the rules and coordinating the work of 200 internationals, helping the organising committee in what we were best indelivering the fun . However, it was not an ordinary who-shoots-it-the-highest competition.

Paul Schattenberg (left) working on the launcher

The success of such multi-objective design process is evaluated based on several criteria: inspired by Delft's legacy for space exploration and Earth-observation, the rockets had to stay airborne for the longest possible period of time (to provide reliable atmospheric measurements in an alternative use-case). For this, the design of a passive parachute-deployment system was advised.

The rockets also had to be sustainable, a quality well proven by every team on the design presentation session. As participants used mostly recyclable material, we not only managed to keep the event low-cost, but also produced minimal waste during the event.

Successful launches (T+0.1)

The competitors participation and enthusiasm was without precedent in the history of the events.

Quite often, we saw teams staying late at the faculty of Mechanical, Maritime and Materials Engineering (3ME) tinkering on their rockets some 3 hours after their session had officially ended. Through this project we not only managed to advertise EUROAVIA Delft on a broader scale than ever before, but we contributed in making many friendships as we made these students' first TU Delft experience truly unforgettable.

Another objective from our side was to involve people from other faculties. Delft has more than 20 industry-driven space projects around its faculties, with only a portion happening at LR (Faculty of Aerospace Engineering). This shows how interested people generally are in aviation and space exploration as well as it alerts us not to forget including these true enthusiasts in our events.

The winner of the event showed a considerably sustainable design, reliable parachute deployment mechanism and managed to stay airborne for 48 seconds, whichconsidering the bad weather conditions, heavy snowfall and the good old Dutch wind, together with the lack of their expertise is a result more than fair.

Based on their enthusiasm though, I would say the result is not at all surprising.

Winner team presentation Team Utrecht 2

As a finale of the event , the coaches made and launched a two-bottle water rocket. The evaporated water drew its contrail onto the cloudy sky as the beast lifted off. A coronation of the event and a nice tribute to the teamwork that made it possible.

The CIO is looking forward to continue the collaboration with EUROAVIA next semester, with an event for 1000+ participantswe will certainly need some assistance, and the same enthusiasm then. Looking forward the next challenge!

Adam Gabor Vermes
Vice President - Delft AS
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Naples

IVX A mini shuttle speaking Italian

Successfully happened the ESA mini-shuttle launch that, helped by VEGA vector, has perfectly achieved the whole mission.

On the 11/02/2015, from the space base in Kourou (French Guyana), one of the most difficult ESA missions has taken place. With the launch of the last generation VEGA vector, the IXV (Intermediate eXperimental Vehicle) ambitious project of an unmanned shuttle, has been brought at a 420km altitude.

IXV, with the recognizable NASA vehicle shape, has had the task of flying over the globe in total autonomy and going back to the design altitude without any complications and finally make a sea landing on the Pacific Ocean.

The IXV structure consists of a lifting wingless central body made of composite material and two rear flaps intended for the aerodynamic orientation. The vehicle is almost 5m long, bit more than 2m wide and with an almost 2 tons weight.

Within it, a very sophisticated instrumentation is set: the avionics, the navigation, heading and control system, the thermal protection and thermal control system, all of them necessary sensors and devices which have made possible the achievement of the whole mission.

Italy, being one of the countries having a share in the mission, has had an important role in it. It has had the privilege and the honour of designing and making the control system of the vehicle, that is the beating heart of it. Among Italian companies, some of them have been involved like Thales Alenia Space supported by its 40 partners and the CIRA (Aerospace Research Italian Center) that has provided a brilliant work in research and development. Two members from AS Napoli were allowed to attend the whole LIVE mission from the CIRAs congress room. Many important people in the Aerospace field like ESA representatives and the Italian Astronaut Paolo Nespoli were in the room and commented and analyzed all the mission operations. So high was the enthusiasm for the launch and the landing of the vehicle, which has definitely confirmed the flourishing position of Europe in the space future.

Antonio Barbato and Nicola Cimmino
Naples AS

Pisa

Agenzia Nazionale per la Sicurezza del Volo (ANSV, "National Agency for the Safety of Flight") is the Italian aviation accidents investigation agency and it is headquartered in Rome.

In May 2014 our local board, in collaboration with few professors of our department, contacted the ANSV in order to organize an event in Pisa: the agency kindly accepted and sent few members to our university.

We organized a meeting where the agency were presented and described. They showed a lot about how they work, about how they react when an accident is reported and what do they do when they reach the accident site. This event was a success and a lot of people showed interest in what the ANSV is doing in our and in the foreign countries and they learned a lot about the aviation accidents. This attendance and the interest surprised the members of ANSV who wanted to maintain a kind of relationship between Euroavia Pisa, the University and themselves.

This "relationship" led to an invite from ANSV to Euroavia Pisa to visit the headquarter in Rome: December 2014 we reached Rome to visit ANSV.

After we arrived we met the Eng. Cometa who were one of the members who came in Pisa and he was glad to see us again.

After a short briefing we met the Prof. Bruno Franchi who is currently the president of ANSV. He talked about what the agency is doing and about what he has done in the past when he had to investigate on some serious accidents.

After the briefing we moved to another wing of the building where the investigations were actually done.

We started from the chamber where the black boxes (flight recorders) were stored and analyzed. They showed us different types of black box and how the technology advanced from the past to our days.

Even if the technological gap was quite evident, was evident as well that the information registered on the black boxes were and are not so much.

On the one hand the block boxes are able to record any information necessary to clarify what has happened just with few GB but on the other hand any data is encrypted. Any code has his own key and this implies that a lot of time is needed even to process few information.

After this short but deep description of how the black boxes work, the Eng. Cometa showed us a record of an accident from 2004.

The accident was already solved and the black box registration was already of public domain, so they were able to let us listen to it. The aircraft involved was a Boieng 767 with 273 passengers aboard and even if this event caused no victims, it was classified as accident because it forced the aircraft to an emergency landing after few minutes after the takeoff.

Everything begun when the pilot received a fire alarm from the right engine after the V1. He tried to extinguish the fire using all of the anti-fire systems but nothing seemed to work. He decided to

call mayday and then to complete the takeoff maneuver in order to immediately land. He reached the sea but he chose to ignore the fuel jettison procedure due the fire alarm still active and so he proceed with an overweight landing. The ANSV started the investigation and later they found that everything was caused by the rupture of a fuel pipe that had been damaged during an erroneous maintenance performed without following the manuals.

After this and few others example about how the investigations work, the group moved to a soundproofed room where any registration extracted from the black boxes are analyzed.

The Eng. Cometa described the analysis process and what they can get from the registrations: for example they said that was quite simple to understand if there was any problem with the engines just listening to the engine noise recorded by the black box.

The problem is that any information can be easily covered by interference; they let us listen to a registration where a phone that was searching for a signal was almost totally covering the registration: the sound was the same that you can hear when a phone is too close to a speaker and it covered few seconds of registration (I think that a lot of us learned why a phone should be turned off during the flight).

Then we moved to a more "physical" part of the laboratories where all the investigation on the parts taken from the accident site were done.

Sadly we were not able to see as much as we saw in the black boxes chamber because a lot of investigations were still opened and so every information or item linked to them were classified. On the other hand we were able to see a lot of machines and procedures used for the investigation while the Eng. Cometa told us about few accidents that he studied and solved in the past.

After a great day spent in Rome with ANSV, it was finally time to say goodbye. The president and the engineers who followed us during the day said that it was the beginning of great collaboration and they hoped for new events in the future like the meeting in Pisa or our visit in Rome.

We would like to thank ANSV and its members especially the great and supportive Prof. Franchi and the Eng. Cometa who shared their knowledge with us throughout the tour turning a good event into an unforgettable experience.

Matteo Pigoni
Pisa AS

Seville

Hi Hi Hi EUROAVIAns!

What's going on? Here you are some interesting news from Seville.

In early March Arduino Workshop, which from the beginning had been attended by many members of Euroavia, concluded. Starting with simple programs using IDArduino free software, the course ended programming sensors with LCD screens, which opened many possibilities to continue experiencing for ourselves.

Also few weeks ago Hexarotor Workshop, which has divided the participants into two groups: those who work with the quadrotor and the ones building the hexarotor, began. With a theoretical-practical mechanics, there is great interest among the members of Euroavia who attend this course, which has now given them the necessary knowledge and tools to assemble the structure of the drone and its electronic components. Soon the software will be prepared and we will have a real time recording hexarotor for various flight tests.

But the most interesting thing is...EMEAC IS COMING CLOSER AND CLOSER! In less than a month, we will be all together in Seville like the big family that we are! We are on the final sprint, so we are preparing the final details of THE TRIP OF YOUR LIVES! We are so motivated about hosting this event that we want everything to be perfect, as it will be ;).

Looking forward to see you all!

José Luis Carretero Rodríguez
Sevilla AS

Valencia

EAFlyInVlc 2015

EAFlyInVlc was held in Valencia from the 24th of February until the 1st of May. During our event, our guests could attend to many different activities which allowed them to know a bit more about the culture of the city, our way of doing things, and they meet a lot of our own members. A lot of new friendships were created, friendships that will last for long. To give you all an idea of what the participants could see and learn, we have selected some pictures that can be seen below;

We did some conferences, about the Aerial Foundation of the Comunitat Valenciana, the history of Spanish aviation, we had the chance to listen the experience of an astronauts trainer, Antonio Torres and we did a workshop by building planes with wood and glue (none of them could fly in the end but it was really funny when we launched them). We also visited the Air Nostrum facilities, the Aerodrome of Requena, with their historical Antonov, and so many other activities.

We of course had amazing nights, with parties and a lot of fun. The most remarkable was the spirits night. Thanks to the big amount of participants, from very different AS we could taste a lot of different liquors and some Turkish sweets which were amazing, after the BBQ we organized.

We can say proudly that when they left Valencia they needed an entire month of rest to recover their energies. The event ended with the final dinner at the four-star hotel where our guests were staying.

Yolanda Trujillo Adriá
Valencia AS

International schedule

Date	Place	Activity	Topics / Internet contacts
12/04 - 18/04	Seville	EMEAC 2015	
20/05 - 30/05	Cadiz	Fly-in	
15/06 - 21/06	Paris	Air Show Le Bourget	
06/08 - 10/08	Stuttgart	Air Cargo Challenge	

Future Deadlines

Issue	Deadline
Newsletter 226	19/04
Newsletter 227	20/05
Newsletter 228	22/06

List of acronyms

AC	Associated Company	**IB**	International Board
AMEAC	Annual Meeting of the Euroavia Congress	**ICM**	International Contact Member
AS	Affiliated Society	**IEM**	International Editor Member
CA	Central Archive	**LB**	Local Board
DeWo	Design Workshop	**NAM**	News Advertisement Member
DIB	Designated International Board	**NL**	Newsletter
EA	Euroavia	**PAS**	Prospective Affiliated Society
EYE	Euroavia Young Engineers	**PWG**	Permanent Working Group
EMEAC	Elective Meeting of the Euroavia Congress	**SM**	Supporting member
FoWo	Formation Workshop	**TSP**	Travel Support Program
FSP	Financial Support Program	**WG**	Working Group

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