Princess Elisabeth Antarctica

A station for science research support

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Presentation overview

- Princess Elisabeth Antarctica
  - A brief history and relevance
  - Localisation
  - Localisation and operation zone
  - Zero emission concept
  - Micro Smart Grid
  - PEA’s assets for science
- Vehicles available at PEA
- Logistic at disposition
- Data collection & samples repatriation

- PEA a scientific platform
- Registration process
- Transportation and pre-deployment formalities
- PEA access
- Safety at PEA and in the field
- Inside PEA
PEA - Brief history and relevance

• PEA, a new chapter in the Belgian-Antarctic history
• Built in 2007-2008 during IPY
• Allow independent scientific program
• Participate to the Antarctic climate monitoring network
• Renewable energy platform
• Education and awareness raising
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PEA - Localisation

- Cape Town
- Princess Elisabeth Antarctica
- Hobart / Christchurch
- Punta Arenas
- Rio de Janeiro
PEA – Localisation & BELARE operation zone
PEA - Zero emission concept
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Energy production at PEA Season 2021-2022

- 9 wind turbines
  - 6kWh each (54kW total)
  - Daily record production = 972kWh
- 315 solar panels
  - Installation of 112 new SP
  - 43% more energy
- 36 Thermal panels
  - 54 m²
- 2 Gensets
  - Hydrogen conversion imminent
PEA - Micro Smart Grid

Based on a Demand Power Management System
PEA’s assets for science

• Multi-access, zero emission research station
• Pristine environment in the Sør Rondane Mountains
• Easy access to DML coast (200 km)
• Easy access to the Antarctic plateau (30 km)
• Improved satellite link for better internet communication (+Iridium & Inmarsat)
• Experienced/professional field guides
• Highly qualified engineer support
• Large selection of vehicles, mobile research facilities
• High flexibility and adaptability to scientists needs
• Full assistance from IPF staff to scientists for expedition preparation
Vehicles available at PEA

- Skidoos + sledges
- Hilux jeeps
- Prinoth tractors + sledges
- Venturi Antarctica electric vehicle
Logistic at disposition

- Mobile scientific laboratories & workshops (x4)
- Mobile Kitchen (x3)
- Mobile dormitory and bathrooms (x5)
- Mobile -25°C Reefer (x1)
- Tents and polar camping equipment
Data collection & Samples repatriation

• All scientific data are stored on a PEA virtual machines with appropriate allocated space
• Data remotely available for scientists 24/7 via satellite link

• Physical samples are sent to CT and final destination with IPF support
  • Regular air or sea cargo
  • Temperature controlled shipment (-25°C)
PEA, a scientific platform

- Climatology
- Glaciology
- Biology
- Microbiology
- Meteorology
- Seismology
- Geology
- Geochemistry
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[Images of scientific equipment and fieldwork in a polar region]
Projects selection

• BELSPO financed research projects
• Other projects

- Endorsed by the Belgian Polar Secretariat
Registration process

- General registration form
- Limitation of Liability
- GDPR regulations and consent
- Medical questionnaire
- Field science support request form

Extra documentation

- Code of conduct in Antarctica
- Participant’s notes
- Cargo procedures
- Antarctic Treaty and regulations under the Madrid Protocol
Transportation & pre-deployment formalities

- Transport from Brussels or anywhere in the world to Cape Town
- Polar clothing selection at IPF’s Cape Town office

- Pre-deployment briefing
- Transport to Antarctica and PEA
PEA - Access

PEA can be reached:

- Via ALCI air base (Novo) from Cape Town to PEA skiway (1.7 km from PEA)
- Direct intercontinental flight to Perseus runway (60 km from PEA)
Safety at PEA and in the field

- Safety training (Chamonix or PEA)
- First aid
- Frostbites
- Crevasse rescue & orientation exercise
- Skidoo training
Inside PEA – Dining room and lounge
Inside PEA Kitchen & buffet
Inside PEA Office and bathrooms
Inside PEA Scientific workshop, Storage & Surgery room
Inside PEA Garage, carpentry and metal workshop