

CSEXPLORER1 OPERATIONS CHECKLISTS

SPACE PEEK

2016

**Run GO/NO GO checklist**

* T-2h predictor indicates recovery location >10km inland - GO
* T-2h predictor indicates recovery location >10km off urban - GO
* Pre Fly Day Checklist checked - GO

**1 - Pre Fly Day Checklist**

* Inform Flight control T – 25h
  + Run predictions and prepare Pre Flight Report
  + Send email to flight control T – 24h
* Check flight computer, Sensors and Calibrate T-17h
  + Charge power bank
  + Update calibration values for sensors
  + Take trial images. Download images to computer and check them.
  + Take sensor trial measurements. Download to computer and check them.
  + Check communications – 144.8
  + Check communications – 434Mhz
  + Check communications - SPOT
* Packing tools T-16h
  + Wire cutter, scissors, knife, pen, paper, torch
  + Duct tape
  + Payload box labels (info tag)
  + Protecting blanket
  + Cable ties (minimum 10 pieces)
* Packing payload Sealed T-15h
  + Payload box closed and sealed
  + Payload box labels
  + Weight payload
* Packing Balloon and Filling Equipment T-14h
  + Balloon
  + Latex gloves
  + Check tank and filling equipment.
  + Tank, pressure reducer, hose, fill tube.
  + Weight to check balloon fill state.
* Packing Tracking Equipment T-13h
  + Track Antenna. Assembled Yagi antenna, FUNcube Dongle and USB cable.
  + Ground Stations.
  + Car power switch source.
  + iPhone charge cable.
* Recovery vehicle(s)
  + Fueled up

**2 - Pre Fly Checklist**

* Run GO/NO GO checklist
* Inform Flight control T-60min
  + Generate new prediction and check for deviations.
  + Verify local weather predictions
  + Call flight control and confirm launch and time.
* Start Ground Station Computer T-50min
  + Power up and power computer via car power switch source.
  + Create local hotspot and connect computer to it.
  + Connect FUNcube Dongle via USB cable to lower USB.
  + Start DSP Radio, Fldigi and Flight Control Centre. Check frequency setting.
  + Start Flight Control Centre and check if working.
* Start Up HAB T-30min
  + Set Date/Time on Raspberry PI before starting scripts
  + Lay out protecting blanket
  + Connect battery to flight computer (turn on the payload)
  + Check signal received in ground station
  + Check successful transmission
  + Lay out rigging lines and parachute to check for damage
  + Check surrounding area to be free of obstacles
* Filling Balloon T-20min
  + Put gloves on.
  + Unpack and attach filling equipment to tanks. Remember check weights.
  + Open tank valve and check flow. Close tank valve.
  + Unpack balloon and put over filling tube. Fix balloon with cable ties and tape.
  + Start inflating balloon till nearly lift of check weights. Consider wind!
  + Connect rigging line with solid nodes.
  + Disconnect balloon from filling tube and close balloon end tight.
* Launch Balloon T-0min
  + Check aerial to not be bend.
  + Check transmission and camera to record.
  + Watch out for obstacles.
  + Let it go.

**3 - Post Fly Checklist**

* On site recovery
  + Call flight control (and confirm touchdown or loss)
  + Photograph payload box before touching
  + Recover payload box
  + Open payload box
  + Stop image capture
  + Power down flight control computer
* In Base
  + Copy logged data to computer
  + Copy images to computer
  + Backup data

**4 - Materials / tools**

* Duct tape
* Payload #1
  + Rpi3
  + Grovepi
  + Sensor Temp/hum
  + Sensor Magnet/accel
  + Power bank
  + Power cable
  + Camera #1
  + Habduino
  + Pilhas habduino
  + Arduberry
  + Antena GPS
  + Antena 70cm
  + Antema 2m
  + Camera #2
  + Régua
  + Logo 3D
* Payload #2
  + Spot
* Ballon
  + Abraçadeiras
  + Bocal de enchimento
* Ground Station #1
  + PC do Hélio + Carregador
  + Conversor para isqueiro do carro
  + HackRF
  + Antena portátil do Miguel
  + Fichas SMA fêmea-fêmea
  + Fichas SMA fêmea-PL fêmea
  + HUB internet 3G Miguel
* Ground Station #2
  + PC EEC
  + Rádio Boafeng
  + Cabo áudio
  + TNC bluetooth
  + Telemóvel do Freitas
  + Ipad do freitas