

## STANDARD EXPERIMENT INFORMATION FORM

## SEIF

Template Version No: 3.3.1

last edited on:

[YYYY/MM/DD]

TRL/DRL (to be filled out by FP-coordinator)

|   |  |                   |
|---|--|-------------------|
| Mission   | (to be filled out by FP-coordinator)   |                   |
| <b>0.1. EXPERIMENT NAME AND BASIC INFORMATION</b>                     |  |                   |
| Acronym   |  |                   |
| Long Name   |  |                   |
| Type of Experiment<br>(technical, geological, biological, medical...) |  |                   |
| Mini Description<br>(1-2 lines)                                       |  |                   |
| <b>0.2. PRINCIPAL INVESTIGATORS</b>                                   |  |                   |
|   | Primary Contact  | Secondary Contact |
| Names of PIs  |  |                   |
| Institution   |  |                   |
| E-mail  |  |                   |
| Phone (institution)   |  |                   |
| Phone (mobile)  |  |                   |
| Skype address   |  |                   |
| Experiment team members in the field?                                 | <input type="radio"/> YES <input type="radio"/> NO <input type="radio"/> TBD   |                   |
|   | <i>To avoid breaking the simulation, PIs are only admitted to the field in special cases. However, even in those situations their stay is limited to the preparation phase of the mission. No external partners are permitted in the field during the isolation phase.</i> |                   |
| Availability of PIs during the mission: (e.g. MSC, remotely, ...)     | Please provide here dates and locations, in case there is not enough space here, please provide an additional document and mention it in section 0.5 "Reference Documents".  |                   |

| 0.3.FP-COORDINATOR (TO BE FILLED OUT BY FP-COORDINATOR)  |  |
|--|--|
| Name   |  |
| Availability during mission  |  |
| E-mail   |  |
| Phone  |  |
| Skype address  |  |
| 0.4.RSS-COORDINATOR (TO BE FILLED OUT BY FP / RSS-COORDINATOR)   |  |
| Name   |  |
| Availability during mission  |  |
| E-mail   |  |
| Phone  |  |
| Skype address  |  |
| 0.5.REFERENCE DOCUMENTS  |  |
| List of additional documents (Procedures etc.)   |  |
| <p><b>Make sure to refer to the most recent version valid of each reference document. Therefore, if you submit a new version of the experiment procedures, update this document as well!</b></p> |  |
| <p><i>format: "file name – version number – short description"</i></p>   |  |

# 1. Experiment Description

| 1.1. SCIENTIFIC RATIONALE        |  |
|----------------------------------|--|
| Brief Description<br>(5-8 lines) |  |
| Hypothesis                       |  |
| Objectives                       |  |
| Successful<br>Experiment Run     |  |

| 1.2. EXPERIMENT READINESS AND COLLABORATIONS  |   |   |   |
|---|---|---|---|
| Technology Readiness Level (TRL; 1-10)  |   | <input type="text"/>  | - to be filled out by FP-coordinator;<br>see FP Handbook for detailed definitions |
| Documentation Readiness Level (DRL; 0-6)  |   | <input type="text"/>  |   |
| Collaboration with other experiments?   |   | <input type="radio"/> YES <input type="radio"/> NO <input type="radio"/> TBD                                  | - to be filled out by FP-coordinator  |
|   | If Y, which?<br>- to be filled out by FP-coordinator  |   |   |
|   | If Y, how?<br>- to be filled out by FP-coordinator  |   |   |
| 1.3. NUMBER OF RUNS/SAMPLES   |   |   |   |
| In order to meet objectives...  | How many runs?<br><i>run...a closed, repeatable part of the experiment, can be divided into specific parts (sections)</i> | How many samples?<br><i>sample...collected during an experiment; e.g. a geological sample could be a rock</i> |   |
| Minimal required  | <input type="text"/>  | <input type="text"/>  |   |
| Optimal   | <input type="text"/>  | <input type="text"/>  |   |
| Comments on runs/samples<br><br>(2-3 sentences)   | <input type="text"/>  |   |   |
| 1.4. PACKING INFORMATION – EXPERIMENT SIZE AND WEIGHT   |   |   |   |
|   | Pre-mission   | Post-mission  |   |
| Number of packing cases/ boxes  | <input type="text"/>  | <input type="text"/>  |   |
| <i>If you have more than one packing case/box, please provide the following properties for each of them.</i>                            |   |   |   |
| <i>In case your hardware contains dangerous goods (e.g. batteries), please make sure that they are properly packed for sea freight!</i> |   |   |   |
| Size [cm*cm*cm]   | <input type="text"/>  | <input type="text"/>  |   |
| Weight [kg]   | <input type="text"/>  | <input type="text"/>  |   |
| Fragile (Y/N)   | <input type="text"/>  | <input type="text"/>  |   |
| Comments  | <input type="text"/>  |   |   |

## 2. Experiment Requirements

### 2.1. TIME AND PERSONNEL REQUIREMENTS

Number of people required for experiment execution and the time they are needed for:

Please fill out the following table in the format "location: number of people x duration" (e.g. "H: 2 persons x 10 min"). "Location" refers to whether the activity is to be conducted in the habitat (H) or out in the field (F) on EVA.

If one of the fields below is not needed, please enter 0 or n/a

**The times given here need to be compatible with the experiment procedures! Make sure to update this table in particular each time the procedures are altered! Otherwise your experiment cannot be accommodated appropriately in the Activity Plan.**

|  | 1-time preparation <sup>3</sup> | Experiment preparation<br>(to be done prior to each<br>run <sup>4</sup> ) | Sole experiment time<br>per run <sup>4,5</sup> | Experiment breakdown<br>(to be done after each<br>run <sup>4</sup> ) | 1-time breakdown <sup>6</sup> |
|--|---------------------------------|---|--|--|-------------------------------|
| Analog Astronaut(s) in the suit <sup>1</sup> |                                 |   |  |  |                               |
| Unsuited Analog Astronaut(s) <sup>2</sup>    |                                 |   |  |  |                               |
| Unsuited field crew member(s) <sup>2</sup>   |                                 |   |  |  |                               |
| Total number of people required              |                                 |   |  |  |                               |

<sup>1</sup> Currently in total two functional suits are available; please be aware of possible short-notice changes (operational constraints).

<sup>2</sup> If possible, during an experiment run outside the habitat these options should be avoided as they cause a discontinuity in the simulation. Only certified analog astronauts are allowed to wear the OeWF analog suits. Not every member of the field crew is an analog astronaut. For "Unsuited field crew member(s)" it is irrelevant if the person doing the task is a trained analog astronaut or not.

<sup>3</sup> This refers to any preparatory activities to be conducted only once per mission, typically in the beginning.

<sup>4</sup> See definition of run in section 1 "Experiment Description".

<sup>5</sup> The time and personnel needed to conduct the "pure science part" of the experiment.

<sup>6</sup> This refers to any breakdown activities to be conducted only once per mission, typically in the end.

| 2.1 TIME AND PERSONNEL REQUIREMENTS (CONTINUED)   |  |   |
|---|--|---|
| Break time between two runs?  |  | <input type="radio"/> Break required <input type="radio"/> Does not matter <input type="radio"/> No break allowed <input type="radio"/> TBD |
|   | If required, how long?   |   |
|   | If not allowed, why?<br><br>If required, why? Are there specific tasks that need to be performed during the break (e.g. recharging batteries)? |   |
| Can the experimenter do other experiments/tasks in parallel or are they needed exclusively? |  | <input type="radio"/> Exclusive <input type="radio"/> Not exclusive <input type="radio"/> TBD   |
|   | Explanation / comments to statement above<br><i>- to be filled out by FP-coordinator</i>   | <i>- to be filled out by FP-coordinator</i>   |
| Comments on this section (2.1)  |  |   |

## 2.2. TERRAIN REQUIREMENTS

*What types of slopes and terrain are required for the experiment, and which locations may be dangerous to the experiment (information to include: sizes of stones, maximum slope, slope stability, moisture content; sand/rocks/cliffs/snow/ice/water...). If possible, please provide examples of specific locations (coordinates) in the proximity of the field camp.*

|                                 |  |                          |                           |
|---------------------------------|--|--------------------------|---------------------------|
| Best terrain                    |  |                          |                           |
| Possible terrain                |  |                          |                           |
| Not useful terrain              |  |                          |                           |
| Dangerous terrain               |  |                          |                           |
| Specific coordinates available? | <input type="radio"/> YES  | <input type="radio"/> NO | <input type="radio"/> TBD |
| If Y – Coordinates              | <p><i>coordinate format: WGS 84 (EPSG:4326, “GPS coordinates”), decimal degrees</i><br/> <i>If you specify multiple locations, please provide a ranking which of those are most ... least important.</i></p> |                          |                           |
|                                 | <p><i>In case of more detailed information (multiple locations, etc.), please provide them in an additional document and mention it in section 0.5 “Reference Documents”.</i></p>                            |                          |                           |

## 2.3. WEATHER REQUIREMENTS

Preferable weather conditions *(conditions outside those ranges are unsuitable for the experiment)*

Unsuitable weather situations *(e.g. rain, thunderstorm, snow...)*

|             |                  |  |                  |  |
|-------------|------------------|--|------------------|--|
| Temperature | Lower limit [°C] |  | Upper limit [°C] |  |
|-------------|------------------|--|------------------|--|

|          |                 |  |                 |  |
|----------|-----------------|--|-----------------|--|
| Humidity | Lower limit [%] |  | Upper limit [%] |  |
|----------|-----------------|--|-----------------|--|

|                 |               |  |
|-----------------|---------------|--|
| Max. wind speed | Steady [km/h] |  |
|-----------------|---------------|--|

|              |  |
|--------------|--|
| Gusts [km/h] |  |
|--------------|--|

Required ground conditions  
*(e.g. dry, wet, frozen, rime, snow cover...)*

Required lighting conditions

Hazardous weather conditions *(conditions outside those ranges are **dangerous** for the experiment and/or the persons operating it)*

Dangerous weather situations *(e.g. rain, thunderstorm, snow...)*

|             |                  |  |                  |  |
|-------------|------------------|--|------------------|--|
| Temperature | Lower limit [°C] |  | Upper limit [°C] |  |
|-------------|------------------|--|------------------|--|

|          |                 |  |                 |  |
|----------|-----------------|--|-----------------|--|
| Humidity | Lower limit [%] |  | Upper limit [%] |  |
|----------|-----------------|--|-----------------|--|

|                        |               |  |
|------------------------|---------------|--|
| Max. steady wind speed | Steady [km/h] |  |
|------------------------|---------------|--|

|              |  |
|--------------|--|
| Gusts [km/h] |  |
|--------------|--|

Required ground conditions  
*(e.g. dry, wet, frozen, rime, snow cover...)*

Light requirements

## Additional Information

Additional weather requirements (not mentioned above)

In case of unstable weather, what is the time necessary to break up the experiment? [min]



| 2.4. POWER REQUIREMENTS  |  |                           |                                |                           |                           |
|--|--|---------------------------|--------------------------------|---------------------------|---------------------------|
| Power [W]  |  |                           |                                |                           |                           |
| Is AC required?  |  | <input type="radio"/> YES | <input type="radio"/> NO       | <input type="radio"/> TBD |                           |
|  | If Y, is the equipment compatible with a 230V/50Hz power grid?                   |                           | <input type="radio"/> YES      | <input type="radio"/> NO  |                           |
|  | <input type="radio"/> TBD  |                           |                                |                           |                           |
|  | <i>If N to question above:</i>   |                           |                                |                           |                           |
|  | Voltage [V]  |                           | Frequency [Hz]                 |                           |                           |
|  | Are plugs compatible with German Schuko (CEE 7/3 socket & CEE 7/4 plug; Type F)? |                           | <input type="radio"/> YES      | <input type="radio"/> NO  | <input type="radio"/> TBD |
| <i>If N, please provide the necessary converters!</i>                                  |  |                           |                                |                           |                           |
|  |  |                           |                                |                           |                           |
| Is DC required?  |  | <input type="radio"/> YES | <input type="radio"/> NO       | <input type="radio"/> TBD |                           |
|  | If Y, is the DC provided by batteries?   |                           | <input type="radio"/> YES      | <input type="radio"/> NO  |                           |
|  | <input type="radio"/> TBD  |                           | <input type="radio"/> YES      | <input type="radio"/> NO  |                           |
|  | <input type="radio"/> TBD  |                           | <i>If Y to question above:</i> |                           |                           |
|  | Type of batteries  |                           |                                |                           |                           |
|  | Number of batteries  |                           |                                |                           |                           |
|  | Capacity per battery [Wh]  |                           |                                |                           |                           |
|  | Net weight per battery [kg]  |                           |                                |                           |                           |
|  | Serial numbers of batteries  |                           |                                |                           |                           |
|  | <i>Please make sure that batteries are properly packed for sea freight!</i>      |                           |                                |                           |                           |
|  | Maximum battery run time [min]   |                           |                                |                           |                           |
|  | Are the batteries rechargeable?  |                           | <input type="radio"/> YES      | <input type="radio"/> NO  | <input type="radio"/> TBD |
|  | <input type="radio"/> YES  |                           | <i>If Y to question above:</i> |                           |                           |
|  | Max. battery charge time [min]   |                           |                                |                           |                           |
|  | Avg. # of runs conductible with fully charged battery                            |                           |                                |                           |                           |
|  | Avg. charge time after 1 run [min]   |                           |                                |                           |                           |
| <i>Please, mind the questions about AC power supply above concerning the chargers!</i> |  |                           |                                |                           |                           |

| 2.4 POWER REQUIREMENTS (CONTINUED)   |  |                           |  |
|--|--|---------------------------|--|
| Comments   |  |                           |  |
| 2.5. COMMUNICATION REQUIREMENTS  |  |                           |  |
| Do you intend to connect to the network infrastructure?  |  | <input type="radio"/> YES | <input type="radio"/> NO <input type="radio"/> TBD |
| If Y, do you intend to use wireless OeWF network infrastructure? <i>(currently 5GHz 802.11a/n WLAN)</i>  |  | <input type="radio"/> YES | <input type="radio"/> NO <input type="radio"/> TBD |
|  | If Y, required bandwidth on the wireless connection [kbit/s] <i>(if approx. constant, otherwise see below)</i> |                           |  |
|  | If not approx. constant, what are the peak and average values?   | Peak [kbit/s]             |  |
|  |  | Average [kbit/s]          |  |
| Static IP addresses required?  |  | <input type="radio"/> YES | <input type="radio"/> NO <input type="radio"/> TBD |
|  | If Y:  |                           |  |
|  | Number in field  |                           |  |
|  | Number in MSC  |                           |  |
|  | Is an independently managed subnet preferred?  | <input type="radio"/> YES | <input type="radio"/> NO <input type="radio"/> TBD |
|  | If Y, minimum size   |                           |  |
| Remote network access to devices in field/MSK required? <i>(i.e. VPN access required)</i><br><i>(i.e. PI neither at field nor MSC, but needs to access some devices)</i> |  | <input type="radio"/> YES | <input type="radio"/> NO <input type="radio"/> TBD |

| 2.5 COMMUNICATION REQUIREMENTS (CONTINUED)   |  |
|--|--|
| Does the experiment include radio equipment?<br><i>(except equipment for interfacing with the ÖWF network)</i>   | <input type="radio"/> YES <input type="radio"/> NO <input type="radio"/> TBD |
| <i>If Y:</i>   |  |
| Frequency range(s)   |  |
| Corresponding effective transmission power   |  |
| If the experiment includes <u>any</u> telecommunication equipment: serial numbers of respective devices.   |  |
| Comments   |  |
| 2.6. DATA REQUIREMENTS   |  |
| Total storage required for data stored on ÖWF equipment (file servers)   |  |
| Data acquisition rate<br><i>(How much data per unit time is generated when the experiment is running?)</i>   |  |
| Does this data need to be transferred during the mission?<br><i>('no' implying that it is returned to MSC with the field crew at the end of the mission)</i> | <input type="radio"/> YES <input type="radio"/> NO <input type="radio"/> TBD |
| If Y, does it need to be transferred as soon as available? <i>(else it will be send in the evening)</i>  | <input type="radio"/> YES <input type="radio"/> NO <input type="radio"/> TBD |

## 2.7. HARDWARE SPECIFICS

– contents of cases/boxes specified in section 1.4 “Packing Information – Experiment Size and Weight”

| No. <sup>1</sup> | Tool/Consumable/Hardware part | Weight [kg] | Size [cm*cm*cm] | Quantity | Consumption Rate <sup>2</sup><br>(per experiment or run) | Serial number (where available)<br>(esp. for batteries and telecommunication devices) |
|------------------|-------------------------------|-------------|-----------------|----------|--|---|
| 1                |                               |             |                 |          |  |   |
| 2                |                               |             |                 |          |  |   |
| 3                |                               |             |                 |          |  |   |
| 4                |                               |             |                 |          |  |   |
| 5                |                               |             |                 |          |  |   |
| 6                |                               |             |                 |          |  |   |
| 7                |                               |             |                 |          |  |   |
| 8                |                               |             |                 |          |  |   |
| 9                |                               |             |                 |          |  |   |
| 10               |                               |             |                 |          |  |   |
| 11               |                               |             |                 |          |  |   |
| 12               |                               |             |                 |          |  |   |
| 13               |                               |             |                 |          |  |   |
| 14               |                               |             |                 |          |  |   |
| 15               |                               |             |                 |          |  |   |
| 16               |                               |             |                 |          |  |   |
| 17               |                               |             |                 |          |  |   |

<sup>1</sup> If you require more lines to specify all of your experiment's tools/consumables/hardware parts, please provide a separate document with a similar table as this one. In case you need to do so, please, do not forget to mention this in section 0.5 “Reference Documents”.

<sup>2</sup> In case your experiment consumes some amount of some substance (e.g. alcohol for sterilizing tools) per run (or in some interval of time), please give here an estimate of the average amount consumed. This will tell the Flightplanning team how often your experiment can be scheduled before the consumables run out.

| 2.8. STORAGE REQUIREMENTS  |                           |  |
|--|---------------------------|--|
| Hardware Storage   |                           |  |
| Can the hardware be stored in an assembled state?  | <input type="radio"/> YES | <input type="radio"/> NO <input type="radio"/> TBD |
| <i>If N, please remember to provide detailed packing instructions.</i>                     |                           |  |
| Does any part of the hardware or any consumable require a specific temperature?            | <input type="radio"/> YES | <input type="radio"/> NO <input type="radio"/> TBD |
| If Y, which parts/consumables and which temperatures [°C]?                                 |                           |  |
| Does any part of the hardware or any consumable need to be protected from rain/frost/etc.? | <input type="radio"/> YES | <input type="radio"/> NO <input type="radio"/> TBD |
| If Y, which parts/consumables and from which environmental conditions?                     |                           |  |
| Are there any other special hardware/consumable storage requirements?                      | <input type="radio"/> YES | <input type="radio"/> NO <input type="radio"/> TBD |
| If Y, of which kind are they?  |                           |  |

| Sample Storage   |   |  |
|--|---|--|
| Are there samples that have to be stored?  |   | <input type="radio"/> YES <input type="radio"/> NO <input type="radio"/> TBD |
|  | If Y, how many and of which kind?               |  |
| Do the/some samples require a specific temperature?  |   | <input type="radio"/> YES <input type="radio"/> NO <input type="radio"/> TBD |
|  | If Y, which samples at which temperatures [°C]? |  |
| Are there any other special sample storage conditions required (Light, humidity, etc.)?  |   | <input type="radio"/> YES <input type="radio"/> NO <input type="radio"/> TBD |
|  | If Y, which?                                    |  |
| Sample Shipment  |   |  |
| <p><i>Please note that in general the experiment's PI is responsible to cover transportation costs and organize transportation logistics. Details (e.g. the location the shipment has to be organized from) vary on a mission basis, and will be communicated in time. In case of questions, please contact your responsible FP coordinator.</i></p> |   |  |
| If samples are taken, where should they be shipped after the mission (recipient/point of contact incl. phone number/e-mail if not given in section 0.2 "Principal Investigators" + postal address)   |   |  |
| Do the samples have to be shipped under any specific conditions (temperature, etc.)?   |   | <input type="radio"/> YES <input type="radio"/> NO <input type="radio"/> TBD |
|  | If Y, which?                                    |  |

## 2.9. EXPERIMENT SPECIFIC REQUIREMENTS

*If necessary, please provide in this section any other requirements your experiment might have, that were not covered in the previous sections.*

### 3. Risk Assessment

Please fill in the lines with the point of view of the Analogue Astronaut operating your experiment in mind. Hazards are sources for potential accidents, endangering the Analogue Astronaut and/or the suit or other adjacent equipment. Please provide sketches and/or photographs if necessary and mention them in section 0.5 “Reference Documents”.

A hazard is applicable, when the Analogue Astronaut is exposed it during a mission, but it might also be applicable if this is not the case: e.g. a sharp part, which is normally hidden from access during operations is not applicable. A pressure vessel for some pressurized gas present during the mission always forms an applicable hazard.

If an hazard is applicable to your experiment, please offer a brief description below the following table (incl. the number of the hazard the description is referring to), or, if there is not enough space there, provide it in an additional document (referred to in section 0.5 “Reference Documents”). Also explain a hazard mitigation procedure in the experiment's procedures document (referred to in section 0.5 “Reference Documents”).

| No. | Hazard  | Applicable to the experiment?<br><br>- check box if YES | If Y, reference to procedure<br><br>(e.g. section, step no.) |
|-----|---|---|--|
| 1   | Unprotected moving Parts                            | <input type="checkbox"/> YES                            |  |
| 2   | Parts with sharp or abrasive surfaces               | <input type="checkbox"/> YES                            |  |
| 3   | Trip hazard, falling, twisting                      | <input type="checkbox"/> YES                            |  |
| 4   | Electrical discharge / arc discharge / high voltage | <input type="checkbox"/> YES                            |  |
| 5   | Electrostatic discharge                             | <input type="checkbox"/> YES                            |  |
| 6   | Dangerous substances                                | <input type="checkbox"/> YES                            |  |
| 7   | Incorporation of health hazardous substances        | <input type="checkbox"/> YES                            |  |
| 8   | Exposure to bio-hazardous substances                | <input type="checkbox"/> YES                            |  |
| 9   | Combustible substances                              | <input type="checkbox"/> YES                            |  |
| 10  | Pyrotechnical Devices                               | <input type="checkbox"/> YES                            |  |
| 11  | Hot/Cold Surfaces                                   | <input type="checkbox"/> YES                            |  |
| 12  | Excessive Noise                                     | <input type="checkbox"/> YES                            |  |
| 13  | Ultrasound / Infrasound                             | <input type="checkbox"/> YES                            |  |
| 14  | Excessive Vibration                                 | <input type="checkbox"/> YES                            |  |
| 15  | Non-Ionizing radiation (Laser, UV, IR sources)      | <input type="checkbox"/> YES                            |  |



| No. | Hazard  | Applicable to the experiment?<br><br>- check box if YES | If Y, reference to procedure<br><br>(e.g. section, step no.) |
|-----|---|---|--|
| 16  | Ionizing Radiation                            | <input type="checkbox"/> YES                            |  |
| 17  | Electromagnetic Interference (EMI)            | <input type="checkbox"/> YES                            |  |
| 18  | Pressure Vessels                              | <input type="checkbox"/> YES                            |  |
| 19  | Low/High external pressure                    | <input type="checkbox"/> YES                            |  |
| 20  | Inadequate Lighting / Glare                   | <input type="checkbox"/> YES                            |  |
| 21  | Oxygen deprivation / Excessive Oxygen Release | <input type="checkbox"/> YES                            |  |
| 22  | Increased work load – Human-Machine interface | <input type="checkbox"/> YES                            |  |
| 23  | Increased work load – Excessive Information   | <input type="checkbox"/> YES                            |  |
| 24  | Heavy physical work / exhaustion              | <input type="checkbox"/> YES                            |  |
| 25  | Interface malfunction to other mission items  | <input type="checkbox"/> YES                            |  |

  

Description of applicable hazards