**Detailed programme (First week)- RS4forestEBV(A&B)– 3-14 July 2017**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **DAY\_1.** Monday 3rd July | **DAY\_2**. Tuesday 4th July | **DAY\_3**. Wednesday 5th July | **DAY\_4**. Thursday 6th July | **DAY\_5**. Friday 7th July | **DAY\_6** Saturday 8 th July |
|  | **Arrival and welcome** | **Introduction to the program and the field sites** | **biophysical measurements** |  | **Field measurements at BNFP** | **Field measurements at SUMAVA** |
| ***9:00-10:30*** |  | Introduction by the scientific committee and outline of the training course **[Scientific committee]**  Self-introduction of participants | **Lecture 2:** Essential Biodiversity Variables in forest ecosystems **[AS]**  Open Discussion | **Lecture 7:** Introduction to data source, Hyperspectral Thermal, [ EN] | Field work: Field data measurements, trial measurement [Scientific committee]  **Airborne campaign** | **Field work: Field data measurements,** [**Scientific committee]** |
| ***10:30-11:00*** | Coffee break | Coffee break | Coffee break |
| ***11:00-12:30*** | **Lecture 1**: Introduction to Bavarian forest national park and Sumava national park field sites and the existing field data by the BNFP coordinator [MH, JM, MS]  Forming of the working groups | **Lecture 3:** Sampling design [TW] | **Lecture 8:** Introduction to ground measurements of biophysical parameters [RD and …]  (demonstration and Training of field instruments (including VNIR/SWIR spectrometers, terrestrial LiDAR, Thermal spectrometer MIDAC, hemispherical camera and other field equipment); |
| ***12:30-13:30*** | Lunch | Lunch | Lunch | Late packed lunch 13:00-14:00 at the field site | **Late packed lunch 13:00-14:00 at the field site** |
| ***13:30-15:00*** | **Excursion in the Bavarian Forest National Park (or Sumava**  **National Park)**  Exact title by (Marco, Joerg and Martin) | **Lecture 4**: Introduction to data source, Hyperspectral measurements [MB, RD] | (demonstration of field instruments (including VNIR/SWIR spectrometers, terrestrial LiDAR, Thermal spectrometer, MIDAC, hemispherical camera and other field equipment); |  |  |
| ***14:30-15:00*** | Bus leave from Munich Airport to BAVARIAN FOREST NATIONAL PARK |
| ***15:00-15:30*** |  | Coffee break | Coffee break |
| ***17:00*** | Registration and room allocation | **Lecture 5:** Introduction to data source, LiDAR measurements [HL] | **Student activity 1:** Practical use of all field instruments |
| ***18:00-19:00*** | **Welcome** EUFAR and RS4forestEBV-  General info on training course and research site **[Scientific Committee]**  **Ice Breaker** | **Lecture 6:** Introduction to the design of the overflight [SH, GL] | **Student activity** **2**: Each working group with a supervisor will develop field work plan incl. selection of instruments and sampling strategies | **REPORTING 1**: Each scientific working group reports on all (Trial) field measurements **[each WG],**  **Discussion on necessary Adjustment** |
| **Student Activity 3: Working Groups** Finalize field work plans and protocols [Scientific committee] |
| 19:00-20:00 | Dinner (hotel) | Late Dinner (outside hotel?) | Dinner (hotel) | Dinner (hotel) | Dinner (hotel) | Dinner (hotel) |

|  |
| --- |
| Lectures (+ hands on exercises) |
| Field-Practical sessions |
| Activities lead by students/Working groups |

**Detailed programme (Second week)- RS4forestEBV(A&B)– 3-14 July 2017**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **DAY\_7.** Sunday 9th July | **DAY\_8.** Monday 10th July | **DAY\_9.** Tuesday 11th July | **DAY\_10.** Wednesday 12th July | **DAY\_11** Thursday 13th July | **DAY\_12** Thursday 14th July |
|  |  |  |  |  |  | **Working Group presentations**  **Wrap up and discussion** |
| ***9:00-10:30*** | Travel to Munich | Welcome to DLR **[**SH, NP, MB, UH]  **Lecture 9:** Introduction to DLR data stream analysis[SH, NP] | **Lecture 13:** Analysis of the measured field data (spectrometry, Lab)[HL, EN, RD, MB]  **Parallel sessions** (lecture +hands on exercise) | **Lecture 17**: Modelling the EBVs **[CA, HL, EN]**  **Parallel sessions** (lecture + hands on exercise) | **Lecture 19**: Modelling and data analysis with **ARTMO** **[JV]** | **REPORTING 3**  Presentation of the results by working groups [Scientific committee] |
| ***10:30-11:00*** |  | Coffee break | Coffee break | Coffee break | Coffee break | Coffee break |
| ***11:00-12:30*** | Check in and room allocations in the hotel | **Lecture 10:** Introduction to EnMAP: EnMAP – the future space-borne hyperspectral instrument [TS]  **Lecture 9:** Introduction to CODE –DE [AM-SH] | **Lecture 14:** Image pre-processing and processing [HL, EN, MB]  **Parallel sessions** (lecture +hands on exercise) | **Lecture 18**: Modelling the EBVs **[CA, HL, EN]**  **Parallel sessions** (lecture + hands on exercise) | **Lecture 19**: continued | Presentation of the results by working groups [Scientific committee] |
| ***12:30-13:30*** | Lunch | Lunch | Lunch | Lunch | Lunch | Lunch |
| ***13:30-15:00*** | Free for course participants | **Lecture 11:** Introduction to the Calibration Home Base (CHB) of DLR [AB]  Visit to calibration home base [AB] | **Lecture 15:** LiDAR and vegetation properties [NC] | Visit to EUFAR aircraft show, | **Lecture 20 :**  Specific case study with ARTMO  [LH] | Wrap-up and discussion [scientific committee] |
| ***15:00-15:30*** | Coffee break | Coffee break | Coffee break | Departure to Munich Airport |
| ***15:30-18:00*** | **Lecture 12:**  **Specific case studies**, “Tree species classification’ lecture +hands on exercise) [NP] | **Lecture 16:** Data fusion Hyperspectral and LiDAR [RK] | WG specific case studies: Preparation of final presentation |
| ***19:00-20:00*** | Dinner (hotel) | Dinner (hotel) | Dinner (hotel) | ICARE Social dinner | Dinner (hotel) |  |

|  |
| --- |
| Lectures |
| Field-Practical sessions |
| Activities lead by students/Working groups |

**Confirmed Trainers**

|  |  |
| --- | --- |
| AS- Andrew Skidmore, ITC-UT, Netherlands, [a.k.skidmore@utwente.nl](mailto:a.k.skidmore@utwente.nl) | EUFAR trainer #1 |
| RD- Roshanak Darvishzadeh, ITC-UT, Netherlands, [r.darvish@utwente.nl](mailto:r.darvish@utwente.nl) | EUFAR trainer #2 |
| TW- Tiejun Wang, ITC-UT, Netherlands, [t.wang@utwente.nl](mailto:t.wang@utwente.nl) | EUFAR trainer #3 |
| EN- Elnaz Neinavaz, ITC-UT, Netherlands, [e.neinavaz@utwente.nl](mailto:e.neinavaz@utwente.nl) | EUFAR trainer #4 |
| IR - Ils Reusen, VITO, Belgium, [ils.reusen@vito.be](mailto:ils.reusen@vito.be) | EUFAR trainer #5 |
| SH- Stefanie Holzwarth, DLR, Germany, [Stefanie.Holzwarth@dlr.de](mailto:Stefanie.Holzwarth@dlr.de) | EUFAR trainer #6 |
| NP- Nicole Pinnel, DLR, Germany, [Nicole.Pinnel@dlr.de](mailto:Nicole.Pinnel@dlr.de) | EUFAR trainer # 7 |
| MB- Martin Bachmann, DLR, Germany, [martin.bachmann@dlr.de](mailto:martin.bachmann@dlr.de) | EUFAR trainer # 8 |
| UH- Uta Heiden, DLR, Germany, [uta.heiden@dlr.de](mailto:uta.heiden@dlr.de) | DLR |
| AM- Andreas Mueller, | DLR |
| MH- Marco Heurich, BFNP, Germany, [Marco.Heurich@npv-bw.bayern.de](mailto:Marco.Heurich@npv-bw.bayern.de) | BFNP |
| JM- Joerg.Mueller, BFNP, Germany, [Joerg.Mueller@npv-bw.bayern.de](mailto:Joerg.Mueller@npv-bw.bayern.de) | BFNP |
| MS- Martin Stary, Sumava, Czech Republic, [martin.stary@npsumava.cz](mailto:martin.stary@npsumava.cz) | Sumava, Czech Republic |
| HL- Hooman Latifi, University of Wurzburg, Germany, [hooman.latifi@uni-wuerzburg.de](mailto:hooman.latifi@uni-wuerzburg.de) | EUFAR trainer #9 |
| GL- Gary Llewellyn, United Kingdom, [gaew@nerc.ac.uk](mailto:gaew@nerc.ac.uk) | NERC |
| RK- Ruben van de Kerchove, VITO, [ruben.vandekerchove@vito.be](mailto:ruben.vandekerchove@vito.be) | EUFAR trainer #10 |
| JV - Jochem Verrelst, Uni Valencia, Spain, [jochem.verrelst@uv.es](mailto:jochem.verrelst@uv.es) | EUFAR trainer #11 |
| AB- Andreas Baumgartner, DLR, [andreas.baumgartner@dlr.de](mailto:andreas.baumgartner@dlr.de) | DLR |
| ST- Tobias Storch, DLR, [Tobias.Storch@dlr.de](mailto:Tobias.Storch@dlr.de) | DLR |
| CA- Clement Atzberger, BOKU, Austria, [clement.atzberger@boku.ac.at](mailto:clement.atzberger@boku.ac.at) | EUFAR trainer #12 |
| LH- Lucie Homolová, CzechGlobe, Czech Republic, [homolova.l@czechglobe.cz](mailto:homolova.l@czechglobe.cz) | EUFAR trainer #13 |
| XZ, Xi Zhu, ITC-UT, Netherlands, [x.zhu@utwente.nl](mailto:x.zhu@utwente.nl) | EUFAR trainer #14 |
| JH, Jonas Hagge, BFNP, Technical University of Munich, Germany, [jonashagge@posteo.de](mailto:jonashagge@posteo.de) | EUFAR trainer #15 |
| NC, Nicholas Coops, University of British Columbia, Canada, [nicholas.coops@ubc.ca](mailto:nicholas.coops@ubc.ca) | EUFAR trainer # 16 |
|  |  |