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

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|  | **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 3:** Essential Biodiversity Variables in forest ecosystems [AS] Open Discussion | **Lecture 5:** Introduction to data source, LiDAR measurements [HL] | **Field work**: Field data measurements, trial measurement [All] **Airborne campaign**  | **Field work:** Field data measurements [All] |
| ***10:30-11:00*** | Coffee break | Coffee break | Coffee break |
| ***11:00-12:30*** | **Lecture 1**: Introduction to Bavarian forest national park (BNFP) and Sumava national park field sites and the existing field data by the BNFP coordinator [MH, JM, MS] Forming of the Working Groups (WG) | **Lecture 4:** Sampling design [TW] | Field Practical 3: Introduction to LiDAR ground measurements and Practical using TLS [Zx] |
| ***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*** | **Lecture 2:** Introduction to data source, Hyperspectral Thermal, [ EN] | **Excursion in the Bavarian Forest National Park (or Sumava**  **National Park)** | **Lecture 6:** Introduction to data source, Hyperspectral measurements [MB, RD]  |  |  |
| ***14:30-15:00*** | Shuttle bus leaving from Munich Airport to Bavarian Forest National Park | Field practical 4: Introduction to Hyperspectral measurements and Practical use of ASD [MB, RD] |
| ***15:00-15:30*** |  | Coffee break | Coffee break |
| ***17:00*** | Registration and room allocation | Field Practical 1: Introduction to Theraml ground measurements and Practical using thermal spectrometer MIDAC [EN, RD] | **Lecture 7:** Introduction to the design of the flight plan [SH, GL] |
| ***18:00-19:00*** | **Welcome** EUFAR and RS4forestEBV-General info on training course and research site [Scientific Committee]**Ice Breaker** | Field Practical 2: Demonstration and training of field instruments (including hemispherical camera and Licor(s), Chlorophyll meters, other forest inventory field equipment); [RD] | **Student activity** **2**: Each working group with a supervisor will develop a field work plan incl. selection of instruments and sampling strategies **; practice with with equipment** | **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 [each WG] |
| ***19:00-20:00*** | Dinner (hotel) | Late Dinner (outside hotel?) | Dinner (hotel) | Dinner (hotel) | Dinner (hotel) | Dinner (hotel) |

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

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

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|  | **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.** Friday 14th July |
|  |  |  |  |  |  | **Working Group presentations****Wrap up and discussion** |
| ***9:00-10:30*** | Travel to Munich | Welcome to DLR **[**SH, NP, MB, UH]**Lecture 8:** Introduction to DLR data stream analysis[SH, NP] | **Lecture 12:** Analysis of the measured field data (spectrometry, lab)[HL, EN, RD, MB]**Parallel sessions** (lecture + hands on exercise) | **Lecture 16**: Modelling the EBVs[CA, HL, EN]**Parallel sessions** (lecture + hands on exercise) | **Lecture 18:** Modelling and data analysis with ARTMO [JV] | **REPORTING 2**Presentation of the results by working groups [each WG] |
| ***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 9:** Introduction to EnMAP: EnMAP – the future space-borne hyperspectral instrument [TS]**Lecture 9:** Introduction to CODE –DE [AM-SH] | **Lecture 13:** Image pre-processing and processing [HL, EN, 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] continued | Presentation of the results by working groups [each WG] |
| ***12:30-13:30*** | Lunch | Lunch | Lunch | Lunch | Lunch | Lunch |
| ***13:30-15:00*** | Free for course participants  | **Lecture 10:** Introduction to the Calibration Home Base (CHB) of DLR [AB]Visit to Calibration Home Base [AB] | **Lecture 14:** Data fusion Hyperspectral and LiDAR [RK] | Visit to EUFAR aircraft show  | **Lecture 20:** Specific case study with ARTMO [LH] | Wrap-up and discussion [Scientific Committee] |
| Departure to Munich Airport |
| ***15:00-15:30*** | Coffee break | Coffee break | Coffee break |
| ***15:30-18:00*** | **Lecture 11:** **Specific case studies**, ‘Tree species classification’ lecture + hands on exercise) [NP]  | **Lecture 15:** LiDAR and vegetation properties [NC] | WG specific case studies: Preparation of final presentation |
| ***19:00-20:00*** | Dinner (hotel) | Dinner (hotel) | Dinner (hotel) | ICARE Social dinner  | Dinner (hotel) |  |

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

**Confirmed Trainers**

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