

TITLE	Advanced biodiversity monitoring in eLTER and other research infrastructures and networks
DESCRIPTION OF THE SESSION <i>(300 words maximum)</i>	Humans are rapidly changing the earth's surface and climate, thus altering and destroying habitats at a global scale. This affects many facets of biodiversity leading to complex and unpredictable system reactions. To be informed, and in the best case take countermeasures, we need to take the pulse of nature by developing and employing new, standardised methods to monitor biodiversity at sufficient scales in space and time and synthesise the data into indicators such as Essential Biodiversity Variables (EBVs). Currently new ideas and techniques in biodiversity monitoring are developing rapidly, as AI and affordable devices are being used. These approaches will bridge the gap between the need for (timely) data and the availability of taxonomic experts. Methods based on acoustic recording of birds and bats are already tested and will be established, taking advantage of automated AI based identification like BirdNet. Characterisation of habitats and vegetation is approached by remote sensing, while metabarcoding of insects reveals a multitude of species including dark taxa in bulk samples which have not been accessible before. These methods have the potential to deliver nearly real time data which has not been possible before. Insect camera traps combined with AI are maturing and begin to deliver affordable and highly temporally resolved data on insect communities. This enables science to roll out biodiversity monitoring schemes in space and time like never before. Especially large networks like the rising eLTER research infrastructure will employ these novel approaches as standard observations across Europe in the coming years. The aim of the session is to give an overview (1) about the state of the art, (2) how networks are going to implement new approaches and (3)

	how these new and more automated approaches may contribute to EBVs.
KEYWORDS <i>(3 words maximum)</i>	standard observations, monitoring methods, sensors, AI
DURATION	2:40 h
SESSION FORMAT <i>(example: workshop, presentation)</i>	presentations, plenary discussion
DURATION	
CHAIR AND AFFILIATION	Mark Frenzel, Helmholtz Centre for Environmental Research UFZ (Germany)
CO-CHAIR (S) AND AFFILITATION	Toke Thomas Høye, Aarhus University (Denmark)