

# The Animal Tag Tools Project

The Animal Tag Tools project is an [Open Source](#) set of standardised software tools written for Matlab, GNU Octave and R, to aid the processing, visualization and statistical analysis of tag data that aims to increase the output and reliability of studies involving high resolution tags.

## Rationale

Bio- logging studies, where data are collected using animal- borne devices, are growing rapidly in numbers and in scope ([Holyoak et al. 2008](#); [Wilmers et al. 2015](#)) . Data from high-resolution tags are essential for assessing animal behavior, and particularly marine animal behaviour in relation to acoustic disturbance, as well as for acquiring baseline behavior for environmental risk models. However, analyses of these data are time consuming and rely on a small cadre of highly skilled scientists, creating a bottleneck in dissemination of key findings.

High-resolution multi-sensor tags typically include accelerometers to measure body posture and sudden movements or changes in speed, magnetometers to measure direction of travel, and pressure sensors to measure dive depth in aquatic or marine animals ([Evans, Lea, and Patterson 2013](#)) or altitude in avian species & flying mammals. A subset of tags include sensors for speed, turning rate (gyroscopes), and sound, increasing the array of inferences that can be drawn about the context and energetic cost of responses to disturbance. Examples include the [DTAG](#) and the [Acousonde](#), both developed under ONR funding; others include the Little Leonardo tag ([Muramoto et al. 2004](#)), [Wildlife Computers Daily Diary](#), the [Opentag Motion Datalogger](#), and a combination camera/movement tag (<http://www.cats.is/products/CATS-Cam/>). While these tags offer exciting opportunities to observe animal behavior in unprecedented detail, there is a need for freely available, easy to use, flexible software tools along with appropriate training to facilitate analysis and interpretation of the resulting data.

## Project Partners

The Animal Tag Tools project is a collaborative project involving international partners from:

- [Department of Mathematics & Statistics, Calvin College](#)
- [Sound & Movement Tags Group](#) part of the [Sea Mammal Research Unit](#), within the [School of Biology, University of St.Andrews](#) and [Scottish Oceans Institute](#)
- [The MOCHA project & Centre for Research into Ecological & Environmental Modelling](#) at the University of St. Andrews.

## Funding

The Tag Tools project is being financially supported by the [United States Office of Naval Research](#).

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Last update: **2017/07/26 15:57**

