

Bornemann, Horst (2003) Dive, at surface behaviour (DSB) - Description of parameter, Alfred Wegener Institute for Polar and Marine Research, Bremerhaven, hdl: [10013/epic.26929.d001](https://hdl.handle.net/10013/epic.26929.d001)

Parameter

Dive, at surface behaviour [#]

Abbreviation: DSB

Parameter no: 31473

Satellite transmitters usually have a seawater conductivity sensor (SCS). The sensor monitors whether the unit is submerged or above the sea surface. Conductivity readings at the SCS terminals can be used to switch the transmitter into certain modes, e.g. "transmission" or "sleep". It can also be used to monitor at-surface intervals or haul-out periods on land or ice. Depending on the manufacturer of the transmitter, the conductivity sensor can be matched with user-defined threshold-depths for transmitting to the polar-orbiting satellites at different repetition rates. The repetition rate may be set to shift from e. g. approximately 90 s intervals (on-land interval denoted as "dry" or "0") when the sensor is disconnected for a user-defined number of consecutive transmission intervals to approximately 50 s (at-sea interval denoted as "wet" or "1") or vice versa.

In accordance with data derived from satellite transmitters of several manufacturers we use processed data on the animal's at-surface time or haul-out on land or ice in different formats and at varying resolutions.

At-surface *condition* at high resolution timelines covers a 24-hour period divided into 72 twenty-minute increments. The SDR uses readings from the SCS at 10 s intervals for each 20-min period and reports whether the majority of the readings during that period were "wet" or "dry" denoted as "1" or "0". Timelines for the previous four 24-h periods are transmitted. This configuration is optional for SDR-T6, T10 or T16 tags manufactured by Wildlife Computers.

At-surface *condition on spot* is based on conductivity readings at the SCS prior to transmission, and reports whether a transmission was sent at "wet" or "dry" repetition rates corresponding to "1" or "0". This configuration is principally available for ARGOS satellite-linked dive recorder and location-only tags of several types and manufacturers but may be based on different technical designs. At-surface information on spot is available for any event label and contains all true ARGOS locations of the ARGOS location classes B, A, 0, 1, 2, 3, denoted as 2, 3, 4, 5, 6, 7.

At-surface *location on spot* given by location-only tags may contain the ARGOS-flag only. Data processing for this information may differ between manufacturers, though the information principally derives from the same data sources denoted as dispose and diagnostic files. SDR data processed via SATPAK software merge locations from both ARGOS file, while others rely on the dispose location file. However, the Sea Mammal Research Unit provides access to the locations as calculated for the diagnostic file.

In contrast to all other parameters "at-surface condition/location on spot" data have not been treated with the velocity filter algorithm. Other parameters may lack locations due to certain filter algorithms or data processing routines, or contain interpolated or manually entered locations. However, there is no parameter or data-set available that merges all true ARGOS locations with all non-located data transmissions. Hence the animal's at-surface behaviour should be monitored preferably at highest resolution. The data have been evaluated and the most improbable data points removed.

It is imperative to read the "Further details" section of each event label prior to data retrieval and analyses. The section summarizes the hardware configuration and the userdefined settings upon deployment. For technical specifications on hard- or software configurations of the different satellite transmitters you have to consult the respective manufacturers.