Navigating through the R packages for movement

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useR! - July 2019
Movement

Tracking packages: created to process or analyze tracking data.
Movement

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Tracking workflow

RAW DATA → Pre-processing → TRACKING DATA (x, y, t) → Post-processing → Analysis

Analysis:
- VISUALIZATION 2
- TRACK DESCRIPTION 4
- PATH RECONSTRUCTION 10
- BEHAVIORAL PATTERN IDENTIFICATION 11
- SPACE USE 17
- TRAJECTORY SIMULATION 11
- OTHERS 8

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Pre-processing

RAW DATA

Pre-processing

TRACKING DATA (x, y, t)

Post-processing

Analysis

VISUALIZATION

TRACK DESCRIPTION

PATH RECONSTRUCTION

BEHAVIORAL PATTERN IDENTIFICATION

SPACE USE

TRAJECTORY SIMULATION

OTHERS
Pre-processing

E.g. Light level geolocator data
Pre-processing

E.g. Light level geolocator data

Packages: GeoLight, probGLS, FlightR, trackit, TripEstimation/SGAT, Twilight Free, telemetr, animalTrack, TrackReconstruction
Post-processing

RAW DATA

Pre-processing

TRACKING DATA (x, y, t)

Analysis

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OTHERS
Post-processing

Cleaning  (argosfilter, SDLfilter, T-LoCoH, TrajDataMining, trip)

Compression  (adehabitatLT, amt, trajectories, trajr, TrajDataMining, rsMove)
Path reconstruction

**Purposes:**
- Correct errors
- Finer data resolution
- Regular time steps

*Remember: model means assumptions!*

**Packages:** HMMoce, kftrack, ukfsst/kfsst, argosTrack, bsam, crawl, ctmcmove, ctmm, BayesianAnimalTracker, TrackReconstruction
Behavioral pattern identification

Purpose:

- Proxy of behaviors through the observed movement patterns

Remember: model means assumptions!

Packages: EMbC, m2b, adehabitatLT, segclust2d, bcpa, marcher, migrateR, bsam, lsmnsd, momentuHMM, moveHMM
Space use

Packages: adehabitatHR, adehabitatHS, amt, move, rhr, BBMM, ctmm, mkde, move, movementAnalysis, T-LoCoH, hab, ctmcmove, feedr, VTrack, moveNT, recurse, rsMove
Quality of a package

- Usability
- Quality
- Style
- Documentation
  - how and why of each function
  - ‘statement of need’: gap/improvement
Survey: 225 users
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11 pkgs over 75% good/excellent documentation
Thanks for your attention

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