

GLEON Student Association (GSA) Workshop

Monday 3 December 2018

“R programming: QAQC of high-frequency lake data and application of GLEON-initiated R packages”

<p>7:30-8:30 (1 hr) Location: Dining Room Breakfast</p>
<p>8:30-9:00 (30 min) Workshop Welcome Location: Conference Room Lead: GSA</p>
<p>9:00-9:30 (30 min) Introduction to GitHub Location: Conference Room Lead: Rosalie Bruel</p>
<p>9:30-12:00 (2.5 hr, including break from 10:15 to 10:45) QAQC of lake data: B3 R Package Location: Conference Room Lead: Chris McBride</p>
<p>12:00-13:00 (1 hr) Lunch Location: Dining Room</p>
<p>13:00-15:00 (2 hrs) GLEON-initiated R packages (e.g., rLakeAnalyzer) Location: Conference Room Lead: R. Iestyn Woolway</p>
<p>15:00-15:30 (30 min) Break Gather anything needed for upcoming “heat-breaker” activity At 15:30 meet just outside the front door of the hotel</p>
<p>15:30-16:30 (1 hr) Heat-breaker activities Explore the island and get to know/catch up with each other Example activities include: frisbee, soccer, walking/running, exploring island in general, playing with quokkas Lead: The GSA</p>

Some details and what to expect

Morning session: Quality control of high-frequency datasets

Automated monitoring stations generate large volumes of data. For example, a single platform measuring 20 variables every 5 minutes will produce more than half a million individual observations per year. Ensuring quality and accuracy of these data can be challenging. In this workshop we will present tools developed by GLEON members for assisting with quality control (QC). These tools, B3 (desktop application) and rB3 (R package), include capability for data visualization, outlier detection, and other aspects of quality control. The tools also aim to provide a fully traceable and auditable quality control workflow.

What to download ahead of time: All material from the Dropbox link sent by the GSA email. Try to install the rB3 package (and dependencies) and test the example scripts.

What to expect:

- Introduction (~20 min)
- Demonstration of B3 (~10 min)
- Participants use B3 with example dataset and (ideally) their own data (~30 min)
- Demonstration of rB3 (~20 min)
- Participants try out rB3 with example dataset and/or their own data (~1 hr)

Afternoon session: GLEON-initiated R packages (e.g., rLakeAnalyzer)

What to expect: Workshop participants will be introduced to rLakeAnalyzer. We will use GLEON data to show how some metrics of lake stratification and mixing can be calculated in R. Participants are encouraged to bring their own data - there will be time to analyze your own data during the workshop.

What to download ahead of time: All material that is on the Dropbox link sent by the GSA email. Try to run the example code prior to the workshop to make sure everything works.