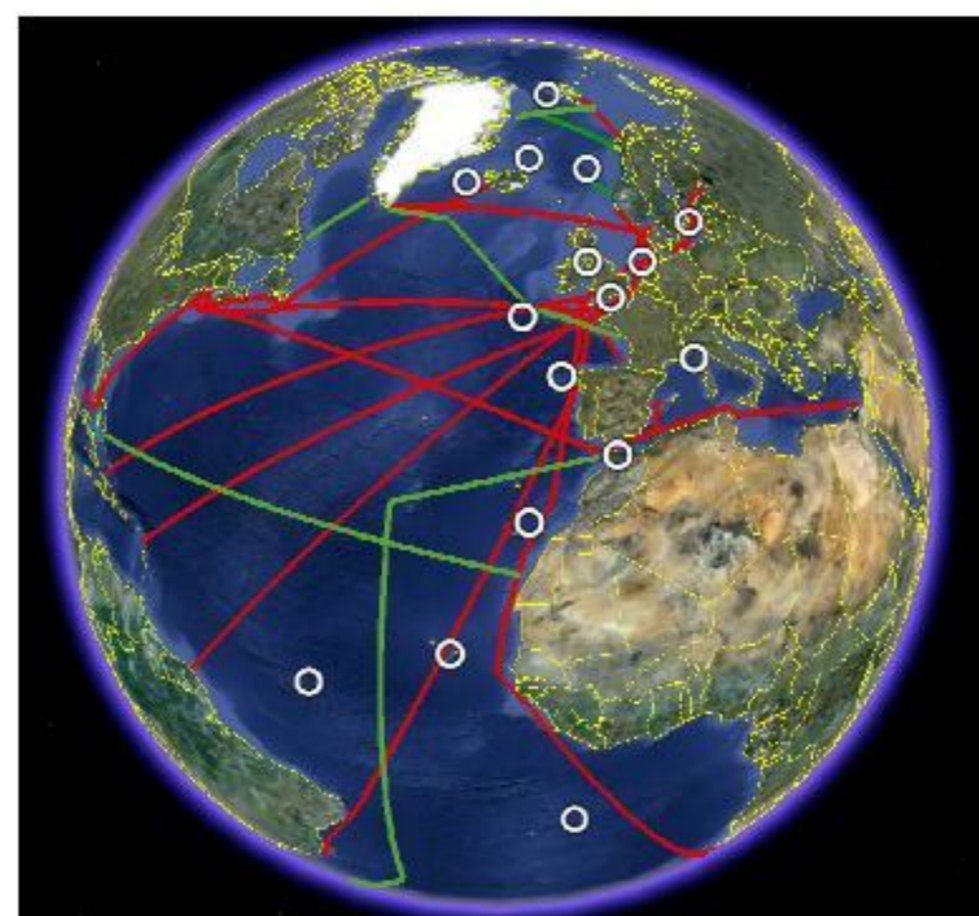


The ICOS OTC Data Lifecycle Plan

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The infrastructure project Integrated Carbon Observation System (ICOS) aims to provide knowledge about the European climate emissions by providing an observing network of ocean, atmospheric and terrestrial stations.

The data lifecycle within the ocean network of ICOS, the Ocean Thematic Centre (OTC), is complex in nature with many steps and transmissions of data and metadata between the OTC, the Carbon Portal (CP) and the Principal Investigators (PIs). The steps include different levels of quality control (QC), version control, standardised vocabularies, data archiving, assigning of Persistent Digital Identifiers (PDI), near real-time (NRT) visualisations, and data publications.

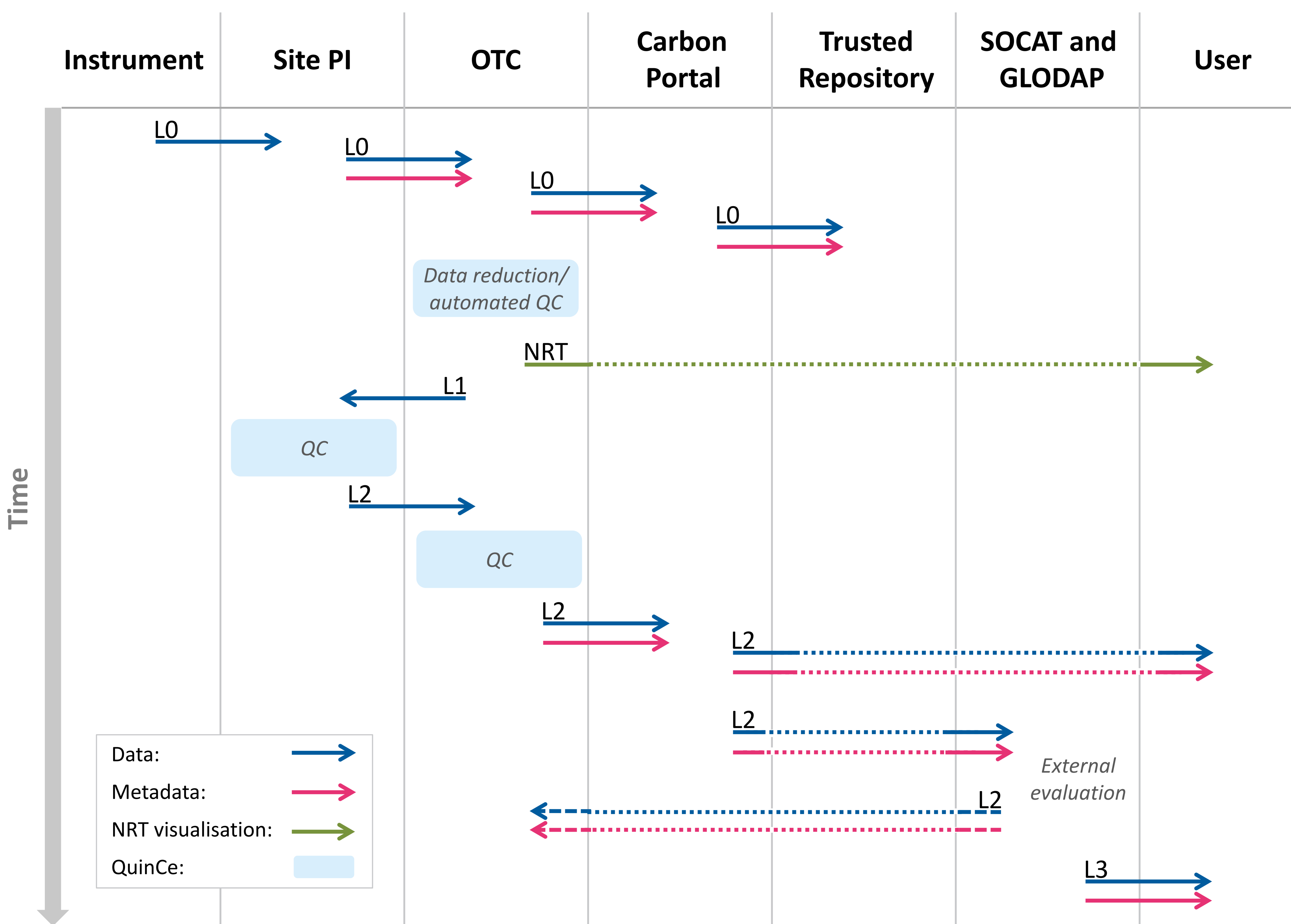


Possible network of stations: Fixed Ocean Stations (circles), Voluntary Observing Ships (red lines) and Repeat Sections (green lines).

Data levels

The defined data levels differ in the amount of processing and quality control applied:

- **Level 0:** raw sensor output
- **Level 1/NRT:** fCO_2 is calculated and automatic quality control is applied
- **Level 2:** final QCed data set
- **Level 3:** external data product using ICOS data



Quality control

Quality control is performed at various levels: automatic QC, QC by PI and OTC, and external QC by data users such as SOCAT and GLODAP.

Version control

All changes applied to a dataset will be logged and archived using a version control system so that older versions can be accessed if needed.

PDI

Persistent digital identifiers (e.g. DOIs) will be assigned for data citation by CP to ensure that data sources, providers and funding sources are acknowledged.

Standardised vocabulary

The *Natural Environmental Research Council* (NERC) standardised vocabulary server will be implemented for the OTC data.

QuinCe

An automated system for data submission and quality control.