T2. Software and code should be under Git version control. Research what internal options at the university or external options there are and suggest a suitable one. R2: Research results and proposal of a Git version control [text] (setup comes later). Assigned to: BE, HW. Due on: 27.03.2025

Git - type the command git --version
GitHub is a product that allows you to host your Git projects on a remote server somewhere (or in other words, in the cloud).

University of Heidelberg :
We currently use the GitLab Community Edition (CE). This is an open source software that is developed under the MIT license. This service is operated and managed by the Research Data Unit (RDU), a joint institution run by the University Library and University Computing Centre providing centralized services for archiving and publishing research data.

Uni of Stuttgart :
Scope of functions The TIK provides a GitHub Education Licence to members of the university: Local Github Enterprise Server Local hardware within the university Source code management for research, teaching and projects Closed user groups Connection via LDAP free of charge

External :
Codeberg : Free software
Planio : Web- based project management system (Used by Phillips University Marburg)

T5. After extensive research, answer the following questions: What reference systems for altitude are there? The altitude from the GPS data (a) is inaccurate. Why? What techniques are there for altimeters (b)? R5: Answers to the questions [text]. Assigned to: BE, HW. Due on: 27.03.2025

Reference system :
International Height Reference System (IHRS) : global equipotential surface as the zero-height level, providing consistent heights worldwide (https://ggos.org/item/height-reference-frame/)

Fields

Expand table

Name	Value	Description
Unspecified	0	The altitude reference system was not specified.
Terrain	1	The altitude reference system is based on distance above terrain or ground level.
Ellipsoid	2	The altitude reference system is based on an ellipsoid which is a mathematical approximation of the shape of the Earth.
Geoid	3	The altitude reference system is based on the distance above sea level.
Surface	4	The altitude reference system is based on the distance above the tallest surface structures, such as buildings, trees, roads, etc., above terrain or ground level.

https://learn.microsoft.com/en-us/uwp/api/windows.devices.geolocation.altitudereferencesystem?view=winrt-26100

Inaccuracy data :
Geometric Dilution of Precision (GDOP): The positioning of satellites affects accuracy. When satellites are low on the horizon, changes in altitude result in minimal changes in distance to satellites, increasing error.
Atmospheric Conditions: Weather conditions can affect signal quality and accuracy
Hardware Limitations: Consumer-grade GPS devices often lack precise sensors, such as barometers, which are essential for accurate altitude measurements

Technique for Altimeters
GPS
Barometric altimeters