TUTORIAL 11: Geoarchaeology Assessment

In this tutorial you will enter geological and geomorphological information relating to a Geoarchaeology feature.

1 Getting Started

Click on 'Geoarchaeology Assessment' in the Card Tree on the left to go to that card (Figure 1).
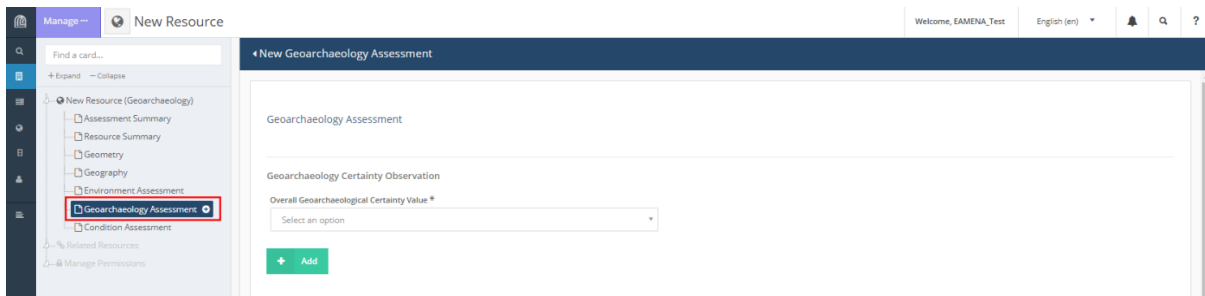

Figure 1

2 Geoarchaeology Assessment

2.1 Geoarchaeology Certainty Observation

In this field you will enter your overall certainty as to whether the site/feature you are describing contains evidence of a past environment, landscape or environmental change.

- Think of it as being like the overall certainty explanation for Heritage Place.
- Click the 'Overall Geoarchaeological Certainty Value' field and choose from the dropdown list (Figure 2).
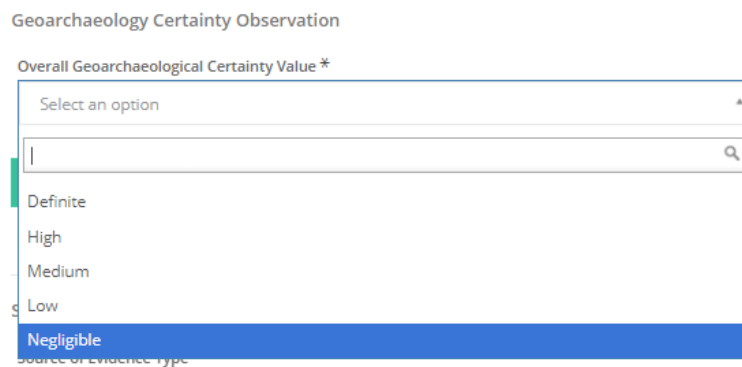 - See the Glossary for definitions of the terms.
- Click '**Add**'.

Figure 2

2.2 Source of Evidence

This field is used to record the technique or approach that was used to obtain the geoarchaeological evidence being documented. It is useful to understand how the evidence and interpretation have been derived, and thus its likely accuracy.

- Click on the 'Source of Evidence Type' field and choose from the dropdown list.
  - If you are unfamiliar with the terms that appear, refer to the Glossary for detailed definitions.
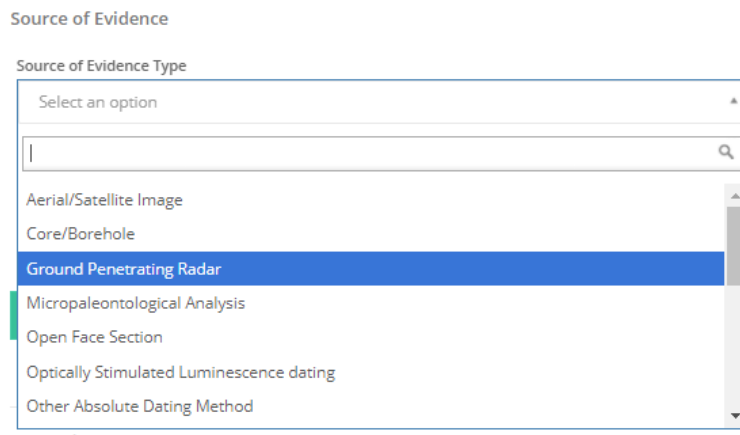

Source of Evidence

Source of Evidence Type

Select an option

Aerial/Satellite Image
Core/Borehole
Ground Penetrating Radar
Micropaleontological Analysis
Open Face Section
Optically Stimulated Luminescence dating
Other Absolute Dating Method

Figure 3

- Use the 'Related Information Resource' field to link to the item from which you have obtained this evidence, for example, an academic paper, a report, or a dataset – i.e. any of the items you would normally use as an Information Resource.
  - Look up the INFORMATION-number of the Information Resource that you have used (see **Tutorial 1: Searching the Database**).
  - Type the INFORMATION-number in the field and once it appears, click on it and it will appear in a line below.
  - If your Information Resource does not yet exist in the system, you can:
    - Add it here by clicking on 'Create a new Information Resource…' and filling in the fields in the window that appears.
    - Please note that it is **very important** to add all relevant information to the rest of Information Resource record. Make sure to do this straight away by navigating to the record (you can do this by clicking on the 'pencil' icon) and completing the other fields.
    - Alternatively, you can create the Information Resource first separately (see **Tutorial 15: Information Resources**), and then link it.
  - A default relationship type of "[This Geoarchaeology Assessment] *is the subject of* [the related Information Resource]", and an inverse relationship of "[The related Information Resource] *is about* [this Geoarchaeology Assessment]" will be created for your relationship.
    - To view or change the type of relationship, click on the bar with the INFORMATION-number (the 'relationship value bar'). However, it should not normally be necessary to change this relationship type in this case.
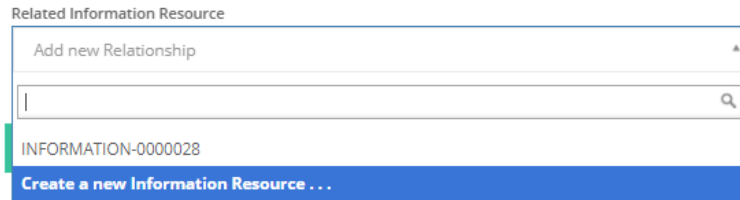
Figure 4: Click on the field to search an Information Resource or create a new one.

2.3 General Date

This card is used to record the age of the feature or site being described through general periods rather than numerical ages. Effectively, it works like the Cultural Periods field used for Heritage Places but using geological periods.

- To add a date, click **'Add'** (Figure 5), then click on the entry which appears in blue text below the 'Add' button to go to the 'General Date' Card.
- Alternatively, you can click on 'General Date' in the Card Tree on the left to go directly to the card.
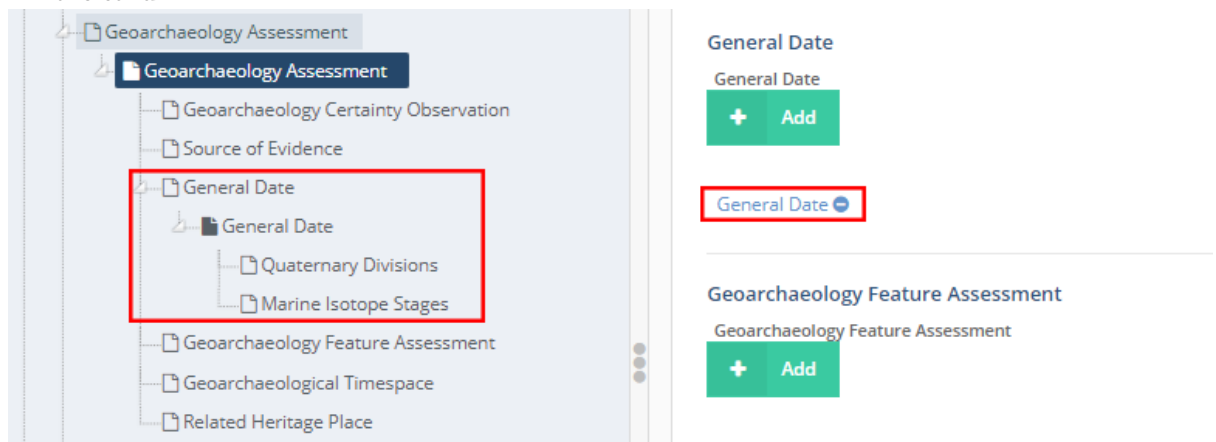

Figure 5

- In the new 'General Date' Card, there are two sections. You can fill in either section, or both (Figure 6).
  - ○ **Quaternary Divisions:** this uses only the broadest agreed-upon categories from the International Commission on Stratigraphy (ICS) Submission on Quaternary Stratigraphy (SQS). More information on these can be found on the SQS webpage http://quaternary.stratigraphy.org/major-divisions/. We have chosen to use only the broadest categories because as there are many local and regional variants with no agreed correlation.
    - ■ Click on the 'Quaternary Divisions' field and choose the appropriate term from the dropdown

- Refer to the Glossary for detailed definitions of the terms
  - Click on the 'Quaternary Date Certainty' field and choose the appropriate level of certainty.
  - Click '**Add**'.
- o **Marine Isotope Stage:** MIS are standard divisions based on oxygen isotope fluctuations recorded in deep sea sediments. They are widely used as standard in most modern Quaternary environmental change literature. Note that the definitions will include the chronological boundaries of each stage.
  - Click on the 'Marine Isotope Stage' field and choose the appropriate term from the dropdown
    - Refer to the Glossary for detailed definitions of the terms
  - Click on the 'Marine Isotope Stage Certainty' field and choose the appropriate level of certainty.
  - Click '**Add**'.
- Your entries will appear in blue below the 'Add' button.
  - o Click on them to edit or delete an entry (Figure 7).

General Date

Quaternary Divisions

Quaternary Divisions

Select an option   ▾

Quaternary Date Certainty *

Select an option   ▾

+   Add

Marine Isotope Stages

Marine Isotope Stages

Select an option   ▾

Marine Isotope Stage Certainty

Select an option   ▾

+   Add

🗑   Delete this General Date

Figure 6: The new 'General Date' window

Figure 7: A new date was entered in the record.

- Some sites span long periods of geological time and can fall within multiple MIS or Quaternary divisions. Therefore, you can add multiple dates for a given site. There are different ways to do this depending on how you are recording:
  - If you are recording multiple ages for a single feature (e.g. a sediment deposit which spans MIS1 and MIS2) then stay on the 'General Date' window and repeat the steps above to add more dates as you did before (Figure 8). E.g.
    - MIS1>High Certainty>Add
    - MIS2>High Certainty>Add

Figure 8: An example of a record with multiple ages for a single feature.

- o If you are recording multiple features with different ages within the same record, then, click 'Geoarchaeology Assessment' in the Card Tree to return to the main Geoarchaeology Assessment Card.
  - ▪ Scroll down to the 'General Date' section and click '**Add**' to create a new entry and repeat the steps above (Figure 9)**.**
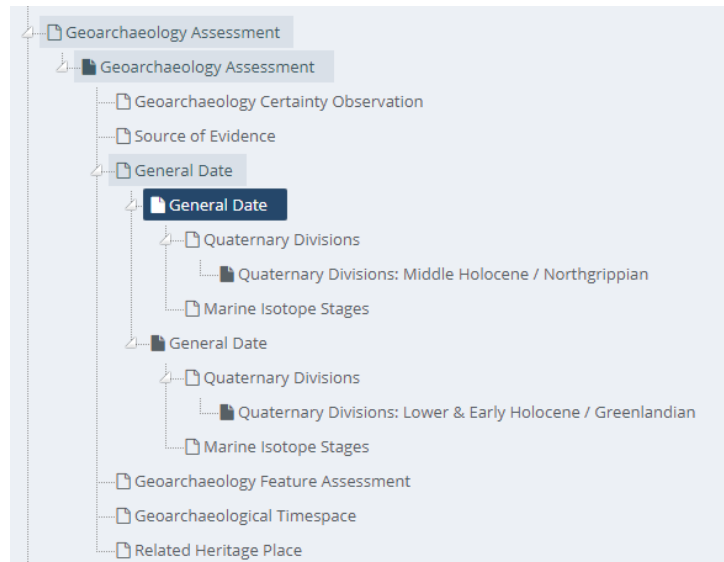

Figure 9: A record with different ages as visible in the Card Tree

2.4 Geoarchaeological Timespace

This field is optional. It is used to record a numerical age for the site being described, if absolute dates are available. This can be used together with the General Age describe above to refine the chronology of a site. For example, a site may fall within MIS1, but also have radiocarbon dates which place it between 6000-7000 cal BP. To add a numerical age (Figure 10):

- Scroll to the 'Geoarchaeological Timespace' section in the main 'Geoarchaeology Assessment' window or click on it in the Card Tree on the left to go directly to its card.
- Enter the oldest date for the site in the relevant 'Date From**'** field as a number, e.g. 1745.
- Enter the youngest date for the site in the relevant 'Date To' field as a number, e.g. 1850.
  - o Archaeological Date
    - ▪ Gregorian calendar
    - ▪ Use negative numbers for BC dates and positive numbers for AD dates
  - o BP Date
    - ▪ Years before present (i.e. before 1950).
  - o AH Date
    - ▪ Hijri (Lunar) calendar
  - o SH Date
    - ▪ Shamsi Hijri (Solar) calendar
- Refer to the Glossary more detailed descriptions of the fields

- Whatever system you use, make sure to use calibrated dates, never radiocarbon measurements, because the latter are not actual dates.
- Click '**Add**'.
- To enter multiple ages, from the main 'Geoarchaeology Assessment' window click 'Add' to add another entry, or click the plus sign beside 'Geoarchaeological Timespace' in the Card Tree, and repeat the steps above.

Geoarchaeological Timespace

Archaeological Date From

Enter Calibrated Date (negative numbers for BC, positive for AD)

Archaeological Date To

Enter Calibrated Date (negative numbers for BC, positive for AD)

BP Date From

BP Date To

AH Date From

AH Date To

SH Date From

SH Date to

Figure 10

2.5 Geoarchaeology Feature Assessment

This is the core of the Geoarchaeology Assessment. It contains multiple fields which are used to describe and interpret the geological/geomorphological evidence being recorded. You can think of it as being like the Feature Assessment for a Heritage Place. The assessment is sub-divided into 4 main components:

- **Feature Sediment:** this is a descriptive category which records the characteristics of the sediment(s) composing the geoarchaeological feature being documented. Sediment is particulate matter (e.g. sand, silt, gravel) naturally created, transported and deposited on the Earth's surface by various processes.
- **Feature Landform**: this is a descriptive category which records the physical characteristics of the landform(s) composing the geoarchaeological feature being recorded. Landforms are geomorphological features which form as a result of various Earth surface processes, and can be found on, or buried under the Earth's surface.
- **Feature Interpretation**: this is an interpretive category which records an interpretation of the descriptive sediment and landform evidence in terms of the past landscape or environment.
- **Related Geoarchaeology/Palaeolandscape**: in this card you can create a relationship between the specific Geoarchaeology Feature you are recording and other Geoarchaeology Records.

It is possible to use either, or both of the descriptive sediment or landform categories depending on the nature of the geological/geomorphological evidence being documented. This reflects different geoscientific approaches and techniques which result in different types of evidence being gathered. For example:

- Satellite images, Digital Elevation Models or seismic profiles can show landforms but not the sediment they are made of.
- Sediment samples from surface observations, cores, grabs or boreholes show sediment type, and only sometimes given an indication of landforms.
- Integrated approaches (e.g. seismic profile combined with core sampling), or features like open face sections can allow both types of evidence to be gathered.

The choice of which to use, and the level of detail which can be entered are therefore dependent on the evidence under consideration.

- To start a new 'Geoarchaeology Feature Assessment', click **'Add'**, then click on the entry which appears in blue text below the 'Add' button to go to the card.
    - o You will see several new cards appear below it in the Card Tree on the left.
- Alternatively, you can click on 'Geoarchaeology Feature Assessment' in the Card Tree on the left to go directly to the card.

NOTE: It is important to complete all of the sections, described below, for each separate 'Geoarchaeology Feature Assessment' entry, before moving onto adding a new one.

2.5.1 Feature Sediment Belief

In this card you will record the sediment characteristics (Figure 11). Choose appropriate terms from the dropdown menus.

- Click on the 'Feature Sediment Type' field and choose from the dropdown to describe the type of sediment
- Click on the 'Feature Sediment Transition' field and choose from the dropdown to describe the nature of the boundary between the sediment layer being documented and the next one to be documented, if a stratigraphic sequence is being recorded.
- Click on the 'Feature Sediment Type Certainty' field and choose the appropriate certainty value of the information entered in preceding sediment fields from the dropdown.
  - Consult the Glossary for detailed definitions of the terms in these fields.
- Click '**Add**'.
  - Your entry will appear as a line of blue text below the 'Add' button. If you wish to edit or delete the information, click the blue text.
- Repeat the steps above to add multiple entries if they are applicable to the Geoarchaeology Feature you are recording.
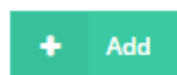

Figure 11

2.5.2 Feature Landform Belief

The fields in this card are used to record landform characteristics (Figure 12).

- Click on the 'Feature Landform Type' field and choose from the dropdown to record the type of landform in terms of its morphology
- Click on the 'Feature Landform Number Type' field to enter the approximate number of the previously entered landforms.

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- Click on the 'Feature Landform Arrangement Type' field and choose the term which best describes how the previously entered landforms are arranged spatially relative to each other.
- Click on the 'Feature Landform Type Certainty' field and choose the appropriate certainty value of the information entered in the preceding landform fields.
  - Consult the Glossary for detailed definitions of the terms in these fields.
- Click '**Add**'.
  - Your entry will appear as a line of blue text below the 'Add' button. If you wish to edit or delete the information, click the blue text.
- Repeat the steps above to add multiple entries if they are applicable to the Geoarchaeology Feature you are recording.

Figure 12

2.5.3 Feature Interpretation Belief

The fields in this card record the interpretation of the above sediment and landform evidence (Figure 13).

- Click on the 'Feature Interpretation Type' field and choose the appropriate interpretation for the above sediment/landform evidence in terms of a former landscape feature
- Click on the 'Feature Interpretation Type Certainty' field and choose the appropriate certainty value of the information entered in preceding fields.
  - Consult the Glossary for detailed definitions of the terms in these fields.
- Click '**Add**'.

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- o Your entry will appear as a line of blue text below the 'Add' button. If you wish to edit or delete the information, click the blue text.
- Repeat the steps above to add multiple entries if they are applicable to the Geoarchaeology Feature you are recording.

Feature Interpretation Belief

Feature Interpretation Type *

Select an option ▾

Feature Interpretation Type Certainty *

Select an option ▾

+ Add

Figure 13

For each of the fields in the last three sections of the 'Geoarchaeology Feature Assessment' card, it is possible to add multiple entries for the specific Geoarchaeology Feature that you are recording. This allows you to record for example:

- A sediment sequence from a core, borehole or open face section
- Multiple landforms of different type which together compose a relict landscape.

NOTE: if recording sediment sequences, the Resource Model does not record stratigraphic position (e.g. which unit lies above/below which unit). If stratigraphic order is important to you then be consistent in the way you record. We therefore recommend that when entering data in a stratigraphic sequence to start with the top unit first and proceed in descending order.

2.5.4 Related Geoarchaeology/Palaeolandscape

This card is used to link the feature being described to another (related) geoarchaeological feature in the database (Figure 14). If there are no related geoarchaeological features, you may leave this card blank.

- Type in the GEOARCH-number of the Geoarchaeology Record you want to add and click on it to add the relationship.
  - o If the record you wish to relate it to does not exist yet, you can choose to create a new Geoarchaeology Record here.
  - o To do so click on 'Create a New Geoarchaeology…' and fill in the Assessment Summary for this new record.

- o Remember to come back and complete the rest of the record for the new Geoarchaeology Record you have created. You can access the new record directly by clicking on the 'edit' (pencil) icon beside it in the line below.
- Click '**Add**'.
  - o A default relationship type of "[This Geoarchaeology Feature] *contains or confines* [the related Geoarchaeology record]", and an inverse relationship of "[The related Geoarchaeology record] *is contained or confined by* [this Geoarchaeology Feature]" will be created for your relationship.
    - ▪ To view or change the type of relationship, click on the bar with the GEOARCH-number (the 'relationship value bar').
- Repeat if there are multiple relationships for the specific Geoarchaeology Feature you are recording.

Related Geoarchaeology/Palaeolandscape

Related Geoarchaeology/Palaeolandscape

Add new Relationship ▾

➕ Add

Figure 14

2.5.5 Add additional Geoarchaeology Features

To start recording the next feature, you must add a new 'Geoarchaeology Feature' entry

- Click on 'Geoarchaeology Assessment' in the Card Tree to return to the main card.
- Scroll down to 'Geoarchaeology Feature Assessment' and click '**Add**'.
- A new line in blue with appear below the 'Add' button, and you will see a new, blank 'Geoarchaeology Feature Assessment' card appear in the Card Tree.
- Click on either of these, to access the new, blank card, and repeat the steps above.
- Continue to add Geoarchaeology Features until you have recorded all of the features relevant for your record.

2.6 Related Heritage Place

In this field you can record a relationship between your Geoarchaeology Record and a Heritage Place Record. If there are no relevant relationships of this kind, you may leave this field blank.

- If the record already exists, type the EAMENA-number into the 'Related Heritage Place' field and click on it to add the relationship.
- If the Heritage Place Record does not already exist, you can create a new one by clicking on 'Create a New Heritage Place…' and fill in the Assessment Summary card which appears.
  - Remember to come back and complete the record for this Heritage Place record too; you can access and the new Heritage Place Record directly by clicking on the 'edit' (pencil) icon.
  - Please see Heritage Place tutorials for further instructions on how to fill in these fields
- Click '**Add**'.
  - A default relationship type of "[This Geoarchaeology record] *contains or confines* [the related Heritage Place]", and an inverse relationship of "[The related Heritage Place] *is contained or confined by* [this Geoarchaeology record]" will be created for your relationship.
    - To view or change the type of relationship, click on the bar with the EAMENA-number (the 'relationship value bar').
- Repeat if there are relationships with multiple Heritage Place Records.