Database Design Documentation

I. NAP Database Tables

a) Stations Table

The stations table will contain data that occurs once per observation (i.e. field station). Recommended fields are below:

Field Name	Description
1. Station_ID	Text descriptor that designates a unique location where data has been collected. This field is required by the DBMS, therefore, it must be entered before the other below fields are entered. Other database tables related to this table are constrained by referential integrity- i.e. you cannot enter values in the other tables unless a station ID has been entered into this table. Type: Text Field size: 24
2. Latitude	Latitude in decimal degrees (8 significant figures); Constrained to 0.0 <= Lat <= +90.0 (northern hemisphere). Type: Number Field size: double Format: fixed, 7 decimal
3. Longitude	Longitude in decimal degrees (8 significant figures); Constrained to -180 <= long <= 0.0 Type: Number Field size: double Format: fixed, 7 decimal
4. Quadrangle	Full name of the 7.5' quadrangle where station is located; e.g. “Bulls Gap, Alabama 7.5'” Type: Text Field size:32
5. USGS_Index	Unique index used by the U.S.G.S. to designate a specific quadrangle. Same as the primary file name of a DRG (o33085h5). Type: Text

	Field size:9
6. Subarea	Thesis/Dissertation area, EDMAP area, etc. {We need to thinks about this} Type: Text Field size: 32
7. Lithology	Lithologic code descriptor (S-Dtbr). Type: text Field size: 32
8. Notes	Brief lithologic description. (Massive cross-bedded metasandstone...) Type: text Field size: 50
9. Strat_Mbr	Stratigraphic member (ex. Kalona sandstone member). Type: text Field size: 32
10. Strat_Fm	Formation name (Cheaha quartzite). Type: text Field size: 48
11. Strat_Gp	Group name (Talladega group). Type: text Field size: 32
12. Strat_Sgp	Supergroup (Ashland supergroup). Type: text Field size: 32
13. Source	Investigator(s) collecting data. Type: text Field size: 32

14. Date	Date when data was collected. Type: Date/Time Format: General Date
15. Reference	Publications that reference this station (if any). This will be a memo field that allows for formatting. Type: memo
20. File_Link	Hypertext field that references the actual scanned field notes with photographs. I recommend using PowerPoint so that the user can easily page through scanned notes and/or photographs. Right-click on the field and then select "HyperLink" to make the link to the file. After that point double-clicking on the file path will automatically load the file for viewing. Type: Hyperlink

b) Structure Table

Field Name	Description
1.Key1	Key field that contains an auto-incrementing counter (unique value in this table).
2. Station_ID	Station designator (but is not unique in this table). Type: Text Field size: 24
3. Structure	Designation for the type of attitude measured (S0,S1,L1, etc.).
4. Attitude	Planar or linear attitude in quadrant or azimuth format (e.g. N 40 E 33 E; 040 33 E; S 34 E 15; 146 15).
5. Shear_Sense	Shear sense indicator {standards needed}
6. Remark	Any useful remarks regarding the structure measured (overturned bedding, fold limb, etc.).

c) Primary Features table design

1.Key1	Key field that contains an auto-incrementing counter (unique value in this table).

2. Station_ID — Station designator (but is not unique in this table).

Type: Text
Field size: 24

3. FeatureType — Primary feature type: Fossil, Structure

4. Feature_Description — Description of fossil/primary structure (memo field)

d) Oxides Table design

1. Key1 — Key field containing an auto-incrementing counter (unique value in this table).

2. Station_ID — Station designator (not unique in this table). Used to link with Stations table for location information.

Type: Text
Field size: 24

3. Sample_ID — Sample designator (unique in this table). Used to link to TraceElements table.

Type: Text
Field size: 24

3. Analysis_Type — Type of instrumental analysis: XRF, ICP, AA, etc.

4. Analytical_Lab — Laboratory conducting the analysis.

5. Analysis_Date — Date of the analysis

6. Analyst_Name — Person or persons responsible for the geochemical analysis.

7-21. SiO2, TiO2, Al2O3, Fe2O3T, FeOT, Fe2O3, FeO, MnO, MgO, CaO, Na2O, K2O, P2O5, H2O+,H2O-, Total=Sum of oxides including H2O+ and H2O-; H2O+=structural water; H2O-=pore water. Fe2O3T = Total Fe as Fe2O3; Fe3O4T=Total Fe as Fe3O4; NOTE: FeO and Fe3O4 should be calculated from Fe2O3T or Fe3O4T assuming an [FeO]/[Fe Total] ratio appropriate to rock composition)

Type: Number
Format: Double, fixed, 2 decimal places

22. Classification — Rock name

23. Classification_Method Method used to classify the rock (IUGS, Barker Ternary, CSM, etc.)

23. Notes Memo field containing notes, if any, regarding the sample analysis.

24. Reference Memo field containing publication reference , if any, for analysis results.

e) TraceElements Geochemical Table design.

1. Key1 Key field containing an auto-incrementing counter (unique value in this table).

Type: Autonumber
Size: Long Integer

2. Station_ID Station designator (but is not unique in this table). Used to link to Stations table for location information.

Type: Text
Field size: 24

3. Sample_ID Sample designator (unique in this table). Used to link to Oxides table.

Type: Text
Field size: 24

4. Analysis_Type Type of instrumental analysis: XRF, ICP, AA, etc.

Type: Text
Field size: 24

5. Analytical_Lab Laboratory conducting the analysis.

Type: Text
Field size: 32

6. Analysis_Date Date of the analysis

Type: Date/Time
Format: General Date

7. Analyst_Name Person or persons responsible for the geochemical analysis.

Type: Text
Field size: 32

8-21. Rb, Sr, Ba, Sc, Zr, Y, V, Nb, Ta, Cr, Co, Ni, Cu, Zn, F, Li, Be, B, U, Th

Numeric field containing the trace element abundance in ppm.
Type: Number
Format: Fixed, 1 decimal place

f) Rare Earth Elements Geochemical Table design.

1. Key1	Key field containing an auto-incrementing counter (unique value in this table). Type: Autonumber Size: Long Integer
2. Station_ID	Station designator (but is not unique in this table). Used to link to Stations table for location information. Type: Text Field size: 24
3. Sample_ID	Sample designator (unique in this table). Used to link to Oxides table. Type: Text Field size: 24
4. Analysis_Type	Type of instrumental analysis: XRF, ICP, AA, etc. Type: Text Field size: 24
5. Analytical_Lab	Laboratory conducting the analysis. Type: Text Field size: 32
6. Analysis_Date	Date of the analysis Type: Date/Time Format: General Date
7. Analyst_Name	Person or persons responsible for the geochemical analysis. Type: Text Field size: 32

8-21. La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu

Numeric field containing the rare earth element abundance in ppm.
Type: Number
Format: Fixed, 1 decimal place

h) Petrographic table design

1. Key1	Key field containing an auto-incrementing counter (unique value in this table).
2. Station_ID	Station designator (but is not unique in this table). Type: Text Field size: 24
3. Analysis_Date	Date of the analysis
4. AnalystName	Person or persons responsible for the geochemical analysis.
5. ClassificationType	Type of classification system (IUGS, CSM, etc.)
6. Classification	Rock classification name
7. Analysis	Memo field containing a description of the analysis (Classification name, point count totals, normative mineral modes, etc.)

II. Data Entry Forms

Three data entry forms will be used for data entry:

1. StationsForm (Figure 1): Controls entry of stations data that occurs once-per-station. This form basically controls entry of data into all of the fields in the stations table. The station ID is required and must be entered into this form before other forms can be used to enter structure or primary features data.

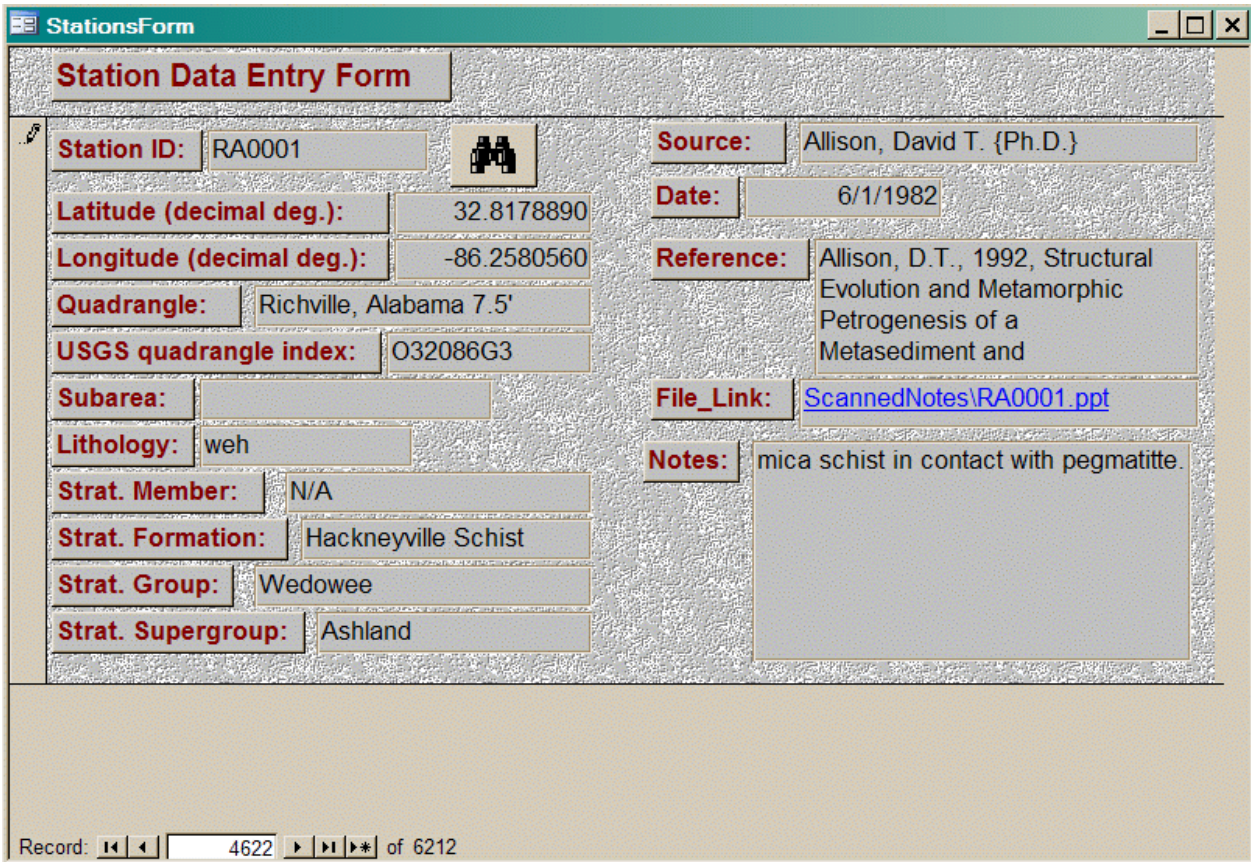

Figure 1: Form for Stations table data entry.

2. StructureForm (Figure 2): Controls entry of structure data into the structure table. The structure field is a drop-down list box from which the user will select the type of structure (Bedding, S0, S1, etc.). The opening dialog of the form displays selected information about the current station (ID, lat, long, quad code, etc.). The user views and/or enters data for that station by clicking on the button labelled “StructureEntryForm”. The information displayed in the initial dialog cannot be modified (it is locked), therefore, the station must first be entered into the stations table using the StationsForm before it structure data can be entered into the structure database. This is to ensure that no structure data is “orphaned”- i.e. entered into the database but has no corresponding station location.

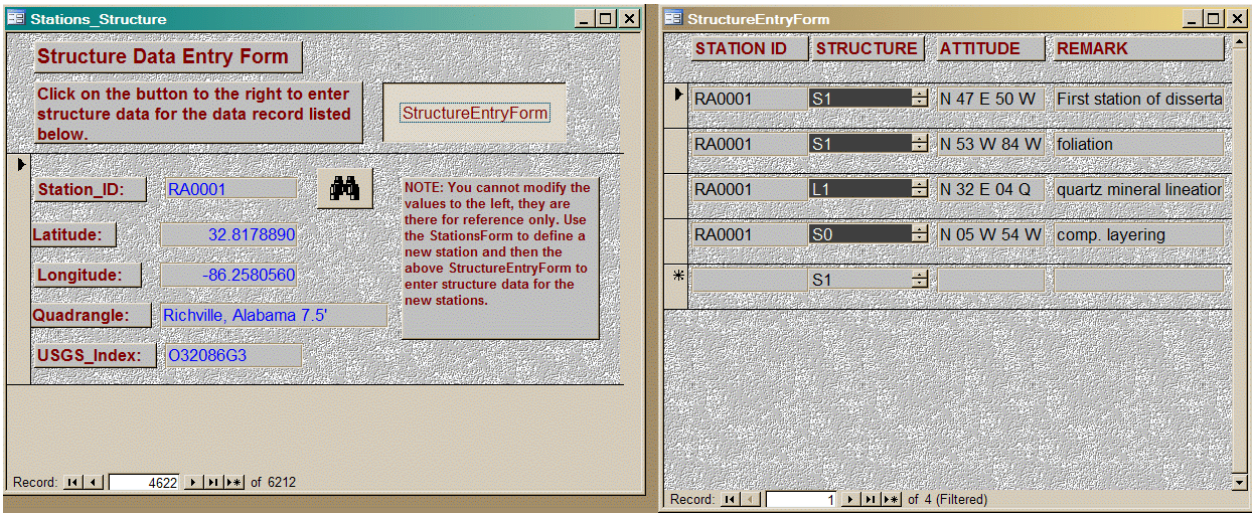

Figure 2: Form for data entry into the Structure table.

3. PrimaryForm: basically designed like StructureForm, but intended to control entry of primary features data into the PrimaryFeatures table.

III. Reports