

**Preliminaries**

Check Possible shortcoming

- |                          |                        |                          |   |                          |                  |
|--------------------------|------------------------|--------------------------|---|--------------------------|------------------|
| <input type="checkbox"/> | Level of measurement   | <input type="checkbox"/> | All variables scalar?                   |                          |                  |
| <input type="checkbox"/> | Absolute minimum # var | <input type="checkbox"/> | Absolute minimum                        | <input type="checkbox"/> | What we have     |
| <input type="checkbox"/> | STV ratio              | <input type="checkbox"/> | What is our STV ratio?                  |                          |                  |
| <input type="checkbox"/> | Min # observations     | <input type="checkbox"/> | Ideal minimum                           | <input type="checkbox"/> | How many we have |
| <input type="checkbox"/> | Normalcy               | <input type="checkbox"/> | Number of chemicals with skews $\geq 1$ |                          |                  |

**First Look at Output**

- How many components were extracted using the  $\geq 1$  eigenvalue default?
- Number of components to the left of the scree plot nick point?
- Are these two measures of extraction the same or no more than one component off?

**Rotated Output**

List variables loading highly in the positive direction on PC1

List variables loading highly in the negative direction on PC1

List variables with loadings  $\sim \leq 0.35$  on PC1

What do the chemicals loading highly on PC1 in the positive direction have in common?

What do the chemicals loading highly on PC1 in the negative direction have in common?

List anything loading highly in the positive direction on PC2

List variables loading highly in the negative direction on PC2

Of those variables loading highly in the negative direction on PC2, what do two of them have in common?

What is up with the other high negative loader on PC2?

What loads pathetically on PC2 (e.g., loadings  $\sim \leq 0.35$ )?

Crazy high loading in the positive direction on PC3

Where (on Earth) do you tend to find the high positive loader on PC3?

What is the polarity that PC3 is picking up on?

### The Geography of Geology (Areography of Areology?)

Coarse scale zonation

What kind of terrain is Spirit traversing in segment one?

What kind of terrain is Spirit traversing in segment two?

What kind of terrain is Spirit traversing in segment three?

Finer scale features

sols 52 to about 65

sols 85 to 115

sols 112 to 122

after sols 150 to 158, Spirit is crossing the West Spur of which feature?

Interpretation of the areological history of the terrain crossed by Spirit from sol 14 to sol 470