Space weathering
- influences atmosphereless bodies
- is caused by
  a) solar wind
  b) galactic radiation
  c) micrometeorite impacts
- results in
  a) albedo reduction
  b) reddening of spectral slope
  c) mitigation of spectral bands

Lunar swirls
- higher albedo
- higher magnetic field

Result II: Mare-highland dichotomy
- PCA revealed difference between swirls in maria and highlands.
  - The result is valid for each swirl individually and also for all the swirls from maria/highlands together.
  - Highland swirls adapt to mare behaviour during PCA on all spectra.
  - Dichotomy is evident even in histograms of albedo and depth of 1-μm band.

Result I: Behaviour of different terrains
- Swirl material (mature in) is distinct from both fresh terrains and mature terrain outside the swirl. Conclusion is based on all methods: spectral stacking, PCA, and histograms.
  - Mature out terrain can always be separated from the rest of the terrains in the PCA plots.
  - Both conclusions are valid for all the swirls.

Result III: Near-/far-side dichotomy
- Spectral slope showed dichotomy between the near- and far-side swirls.
  - Due to crossing of Earth's magnetotail?

M^2 spectra
- 4 mare swirls (Reiner Gamma, Rima Sinus, Mare Ingenii, Mare Marginis)
- 3 highland swirls (Airy, Descartes, Gerasimovich)

4 terrains in each swirl region
- fresh material outside the swirl (marked by ◦)
- fresh material inside the swirl (●)
- mature material inside the swirl (●)
  - influenced by micrometeorites
- mature material outside the swirl (●)
  - influenced by all the components
  - → thousands spectra in total.

Methods
Spectral fitting using the Modified Gaussian Model and
1) comparison of stacked spectra
2) histogram evaluation
3) Principal Component Analysis (PCA)