The following was presented at DMT’11 (May 22-25, 2011).

The contents are provisional and will be superseded by a paper in the DMT’11 Proceedings.

See also earlier Proceedings (1997-2010) http://ngmdb.usgs.gov/info/dmt/
What Is Raster Blending?

Blending one raster into another so the properties of both are preserved.
Why Raster Blending?

- To avoid using transparency on geologic map units, which weakens the colors!
Why Raster Blending?

• To avoid using transparency on geologic map units, which weakens the colors!
• To balance the shading and topographic base map so they compliment, not dominate, the geologic mapping
Raster Blending Techniques

ArcMap Transparency

Global Mapper Blending
Transparent Polygons
“I don’t need no stinking blending”, I’ll just put the base map on top of the map unit polygons!
“I don’t need no stinking blending”, I’ll just put the base map on top of the map unit polygons!

I encourage you to not do that; base maps belong at the “base” of all other layers
Base On Top Of Polygons Is Bogus

NO BUENO!
Base On Top Of Polygons Is Bogus

NO BUENO!

Base belongs underneath geology!
Raster Blending Techniques

Transparency

Blending
Impressive, so how do you make these?

Start with a high-resolution raster made from your map unit polygons and patterns…
let’s go to an ArcMap project.
First, symbolize your map unit polygons with colors and patterns.

Set the data frame reference scale to 1:24,000 (for 7.5’ quads).
Now right-click your polygon layer and choose *Convert Symbology to Representation*.

The representation layer will be added to the table of contents (TOC).

Feature class representations let you store symbology with your features in the geodatabase.

With a representation, your map unit patterns will scale properly at all zoom levels in the data view.
Turn off everything in your TOC except the polygon representation layer.

Then export your data view to a high-resolution GeoTiff, between 1800 and 2400dpi!

Yeah, that’s right, you want a really high resolution raster for this.
Now On To Global Mapper!
Global Mapper Overlay Blending

The *Blend Mode* settings control how an overlay is blended with underlying overlays, in addition to the *Translucency* setting. These settings allow Photoshop-style filters to be applied to overlays, giving stunning results.
Global Mapper Overlay Blending

The *Multiple* blend mode is the most useful option for blending map images to make image mashups.

Images from: Explaining Blending Modes in Photoshop and GIMP (Multiply, Divide, Overlay, Screen) by Margot Dinardi
Global Mapper - raster options
Translucency – None (100%)
Blend Mode – Multiple
Global Mapper - raster options
Translucency – 45%
Blend Mode – Multiple
Global Mapper - raster options
Translucency – 30%
Blend Mode – No Blend
Multi-Image Mashups For Use In ArcGIS

Now On To ArcGIS!
Multi-Image Mashups For Use In ArcGIS

ArcMap - Geologic lines, symbols, and annotations
Multi-Image Mashups For Use In ArcGIS

ArcMap - Geologic lines, symbols, and annotations, with multi-image mashup of map unit colors and patterns, shaded relief, and topographic base map.
Benefits of Multi-Image Mashups

• Full strength map unit colors
Benefits of Multi-Image Mashups

- Full strength map unit colors
- Much better graphic presentation of geology, shaded relief, and topographic base map.
Benefits of Multi-Image Mashups

- Full strength map unit colors
- Much better graphic presentation of geology, shaded relief, and topographic base map.
- Eliminates the need for most ArcMap layer transparency, significantly increasing graphic performance.
Questions, comments?

Kent Brown
Utah Geological Survey
kentbrown@utah.gov
http://geology.utah.gov

Global Mapper LLC - http://www.globalmapper.com/