DFM DWG Members,

I’ve attempted to keep the DFM definitions below succinct and as general/abstract and self-explanatory as possible by using commonly understood words and ideas, and free of jargon. Except perhaps for one: Deformation Model (DM). I wanted to make a distinction between a DM and the DFM, by generalizing the DM and qualifying the DFM. While some of these may fail as pure definitions for a published standard since they digress somewhat, but I hope they can be useful as potential guides for our work. Of course, these didn’t just pop out of my head, they were compiled from a variety of sources, as many of you will recognize. – ***Kevin M. Kelly***

**Deformation** – Deformation refers to the change in size, shape or other metric property of a continuous body. If all the particles that comprise the body move without producing a change in the size or shape of the body, this is called rigid body motion. However, if the size or shape of the body changes, this is called deformation.

**Displacement** – Displacement refers to the change in position of a point (or location) on a continuous body.

**Deformation Model (DM)** – A deformation model relates kinematic quantities such as acceleration, velocity and displacement, to dynamic quantities such as forces by means of parameters which depend on the structure and composition of the material body (e.g. density, viscosity, etc.).

**Deformation Functional Model (DFM)** – A DFM is a mathematical description the displacement of the position of points on the surface of a continuous body, in this case the Earth, either instantaneously or over time. The magnitude and direction of the displacement is represented as a polynomial function of time. The polynomial function provides a means to compute the position of a point at any given time. The DFM includes both rigid body motion and deformation. The specific context of the DFM described in this work refers to the displacement of the position of points caused by motion of the Earth’s crust, hereafter termed simply “crustal motion”.