Geological history of adair park south west arizona

History

I. On Saturday, November 16, 2013, our Geology class went to Adair Park Yuma Arizona on our adventure of a lifetime. The point of the trip was to view real life examples of some of the things that we have studied over the course of this semester. Actually being able to see examples of such things as cross-bedding dikes, unconformities, folds faults and various sedimentary features. II. The first stop of the field trip was to look at the Gneiss. The Gneiss has been around for about 1. 6 bilion years. The probable type of contact metamorphism The general term for all such incorporated bodies is inclusions.

Xenoliths are usually reconstituted through the processes of contact metamorphism, in which heat and fluids cause mineralogic and chemical changes in the parent rock of the xenolith; a study of these changes can give information on the temperature and composition of the magmatic body. The mineral compostition that what we could see were Biotite, Muscovite and quartz. The other significant feature the dikes(white) that was younger in the cross cuting through the Gneiss. III. The second stop of this field trip was to look at the Granite. The Granite and has been here for around 1. 4 billion years.

The type of rock Granite which is Igneous with a funeratic course grined, with grains visible on fresh surface. The type of mineral composition in the Granite is Orthoclase, Quartz and Biotite. IV. The third stop of this field trip was to look at the Pegimatite. The Pegmatite has been around for about 73 million years. Pegmatite is very coarse granite. Pematieites are thought to form from the bolatile low-denisity fluids that crystallize last from the

grainitic magma. V. The fourth stop of this field trip was to look at the Red Beds. The red beds have been in the area around 20-30 million years old.

The steep cliffs of Adair Park and the surrounding lowlands offer breathtaking exposures of the lower subunit--the red conglomerates/breccias and gypsum. These red-bed deposits are composed of interbedded breccias, conglomerates, sandstones. In other areas it commonly forms a medium thin, dirty, discontinous bed up to 10 - 60 cm thin beds are usually well sorted, clast-supported, commonly normally graded.

The conglomerates are also thinly bedded and clast-supported, but are moderately well-sorted to poorly sorted and contain an abundance of angular to well-rounded quartz, feldspar, calcite, granite and gneiss. metamorphic, and mafic volcanic clasts. The conglomerates can generally be distingushed from the breccias by their well-bedded nature. VI. The fifth stop of this field trip was to look at the Green/Tan Beds. The green and tan beds have been in the area around 20-30 million years old. These green and tan bed deposits are compsed of gypum. On other areias it commony forms a thin disconintuous bed up to 10 cm thin are usually well sorted , clast-supported commonly normally well sorted, commonly normally graded.

The gypsum are also thinly bedded and poorly sorted, but are mederately well-sorted to poorly sorted and contain an abundance of angular calcite, and hornblend. See Figure 2. VII. The sixth stop of this field trip was to look at the diobase dike. This diobase dike have been here less than 10 million years. The diobase dike are composed of a metamorphic- plutonic basement that is overlain by middle Tertiary sedimentary and volcanic rocks.. Much of thesedimentary sequence was deposited before the onset of

volcanism and tectonism, although the local presence of clasts of volcanic origin suggests at least some synchroneity.

The sedimentary rocks are commonly in low-angle normal fault contact with underlying basement rocks. Gentle folding and warping, along with poorly developed cleavage, are generally present. Tertiary volcanic rocks are dominantly intermediate to mafic flows with lesser amounts of pyroclastic material. Olivine, augmite and green poroxy is largely altered. See Figure 1. VIII. The seventh stop of this trip was to look at the Terrace Gravels. The terrace gravels have been around for around 200, 000 years. An angular unconfomity of Adar formation with the overlying terrace gravels. In some place of Adair park the terrace gravels can be as much as 200 feet thick.

The were mountains that used to be in the area but with water erosion the mountains dispareared. Bajada, (Spanish: “ slope”:) is a broad slope of debris spread along the lower slopes of mountains by descending streams, usually found in arid or semiarid climates; the term was adopted because of its use in the U. S. Southwest. A bajada is often formed by the coalescing of several alluvial fans. Such coalescent fans are often mistaken for erosional landforms known as pediments. The repeated shifting of a debouching stream from one side of a fan to the other spreads the sediment widely and almost uniformly.

As the sediment eventually grows together, the slope may extend outward from the mountain front to a distance of several kilometres. A bajada is usually composed of gravelly alluvium and may even have large boulders interbedded in it. XL. Inconclusion the field trip really helped me learn some of the stuff that we studied during this course being able to see some real

examples and havintg them explained to us. This has been fun class any your are great professor. I appreciate your sense of humor during the class and your attempt to make learning fun.