

Jack 6/2/2015

Tooele 30x60 Notes for Review

June 1, 2015

Year 1 Map Area

Went through list of remaining edits for year 1 area (we discussed Sept 2014 and Jan 2015) and addressed them all.

Fans east of Tooele city, changed Barry's Qat (terrace alluvium) to Qafo, left the rest as QTaf. Should all the older fans east of Tooele be Qafo? (Bob Biek suggested this). The fans near Bates Canyon look QTaf to me. Changes to Qat OK. It seems to me that Qafo overlaps with QTaf, so distinguishing them is difficult in places. One thing we could use to help distinguish them, although it probably won't work everywhere, is preservation of alluvial-fan morphology . . . Qafo has pretty distinct fan morphology (but etched in places by the Bonneville shoreline, dissected by streams), but QTaf doesn't have as distinct fan morphology (although the big masses of QTaf on the east side of the Oquirrh seem to have fan morphology if you stand back and squint your eyes). You're right, the remnants near Bates Canyon could be QTaf; or, they could easily be small remnants of older fan gravels (Qafo) similar to the ones just to the north of Bates, and similar to the ones south of there near Pole and Middle Canyons. I wouldn't object to calling all of this Qafo. If we had actual geochronology for the little patches near Bates we could call them QTaf, but it might be acceptable for our purposes to lump them with the rest of Qafo.

Tooele Valley near I-80 and Old Salt Evaporator, changed Jack's Qam to Qpm to match better with year 2 map. I am not clear on the distinction between alluvial mud and playa mud. To be precise, I don't know the distinction either. I think of Qam as being in small closed depressions in places above the valley floors (as in the lagoon depressions behind lacustrine barriers), and Qpm as being in larger closed depressions or on very low-gradient flats on the valley floors, but it's basically the same material (mud). These two units merge with the unit we call (or that Barry called) Qlf; I don't think there are a huge distinctions among them. It's even hard in many cases to determine whether the deposits are lacustrine or alluvial in origin – probably both lacustrine and alluvial processes were involved in their deposition. In the case of the map, I think what matters is that the map pattern we end up showing doesn't look strange for some reason. In other words, we just need to make sure the map pattern is OK and that our choices of unit calls are somewhat consistent from place to place --- I think we've done this for the most part. If I spot anything that looks funny, I'll point it out.

East side of Oquirrh Mtns, per Jack stripped off Barry's pediment units from Tsl (was QTag and Qag on our yr 1 map), and merged Qat with Qafo, Qla, or Qal. OK

Western Salt Lake and eastern Tooele Valleys, we changed most of Barry's Qafy to Qal, not sure we consistent with year 2 area? These are two other units that are hard to consistently distinguish . . . I think of Qafy as having fan morphology (it's on steeper slopes than Qal), but the sediments are similar (maybe coarser-grained in Qafy). Maybe age is what they have in common (post-Bonneville), and it's only slope that distinguishes them. As with the mud units, I

think what matters is that the map pattern we end up showing doesn't look strange for some reason.

Antelope Island, we don't like the Qlb (lacustrine boulders) unit, but we can't think of an easy way to fix it, so left as is. OK

Oquirrh, Jack drew lines for glacial deposits and features. OK

Great Salt Lake fault zone, changed fault attributes to colored lines to match what Dinter did. OK

Oquirrh Mtns, put the tephrochronology data in the DMU. The Tertiary conglomerate unit up on the mountain is 40 Ma by detrital zircon U-Pb, so called it Tso rather than Wasatch Fm, which is older. OK

Oquirrh Mtns, please check that the tick marks on the glacial cirque and nivation hollow lines are pointed in correct direction. On the short ridge that points to the NE on the north side of Nelson Peak cirque, put tick marks of both sides of the blue nivation line (both sides of the ridge receive wind-blown snow and experience nivation processes).

Browns Island and Antelope Island, per Jack changed Qlos (lacustrine oolitic sand) to Qlk (lacustrine carbonate-chip sand and gravel). Qlos was on the year 1 map. OK, just so we're consistent across the map area

Year 2 Map Area

Should the Qla at Badger Island and south of Carrington Island be mapped as Qlk? Any Qlk on Stansbury Island? There is a lot of Qlk in the areas we map as Qpm and Qla (that is, Qla at low altitudes on the flats). It's not worth trying to separate them everywhere, so we need to make sure we note the variability in the DMU.

East flank of the Stansbury Mtns, went round and round, finally mapped as stacked unit QTaf/Tslc (Oldest alluvial fans over Salt Lake Fm, conglomerate lithosome), since the fans could not be broken out, and we already had some stacked units. This sounds fine to me.

West side of Stansbury Mtns, mapped the Tertiary 'alluvium' as Tslc. We have no age control on this unit. May try again to date the basalt at the base next year if any money is available. Tslc appears to be sitting in a half graben, I saw no good evidence for a fault on west side of basin. OK

Stansbury Mtns, volcanic rocks (unit Tvs) two radiometric ages pending from east side. OK

Stansbury Mtns, please check that the tick marks on the glacial cirque and nivation hollow lines are pointed in correct direction. These look good to me.

Glacial, Jack drew lines for glacial deposits and features. OK

Stansbury Mtns Muskrat Canyon, mapped three polygons as QTaf?, maybe they should be Tslc? One we saw by the Bonneville shoreline had a dirty tephra in it. Is this the north end of the Tertiary basin? Mapped Dorothy Sack's faults as lineaments. To me, the distinction between QTaf and Tslc is murky in places, as it is between some of the Q units. I don't have a strong opinion about it, and in the interests of keeping things relatively simple, I'll leave that one up to you. If we don't note tephra elsewhere in QTaf, maybe Tslc is a more appropriate call, but the long, flat-topped, sloping ridge above the place where we found the dirty tephra seems to be an alluvial-fan remnant (more like QTaf?).

Mapping Dorothy's faults as lineaments sounds fine to me.

Skull Valley, Dorothy Sack mapped the low lying stuff as Qld (lacustrine mud), but I used Qpm (playa mud), since it seemed to merge with the mud near GSL. this is a good idea

Stansbury Mtns Pope/Magpie Canyons, fixed up mapping there from field work. OK

Tooele Valley, we have two polygons of Qam (alluvial mud), one near Burmester and one south near Blue Lake, should we keep these or merge with something else? merge the one near Burmester with Qpm and re-label the one near Blue Lake as Qlf

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