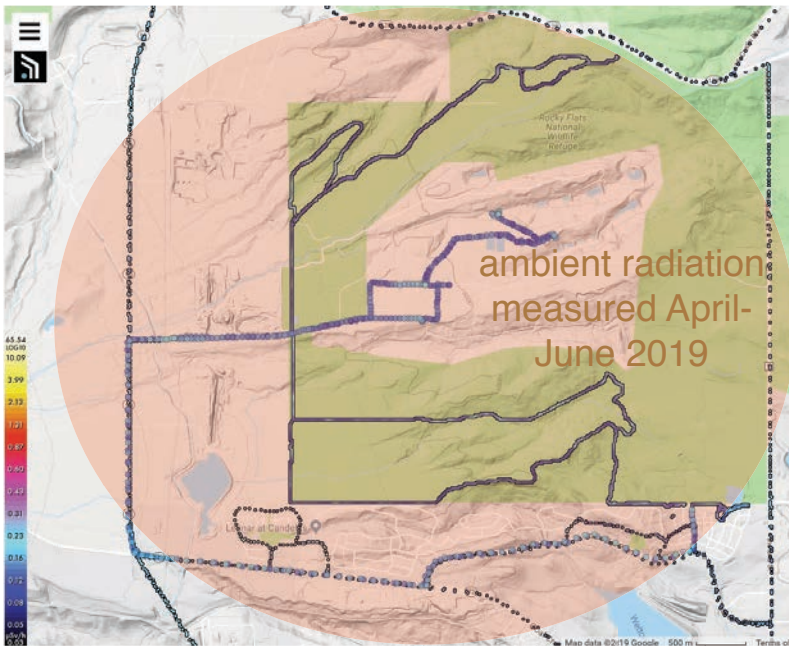
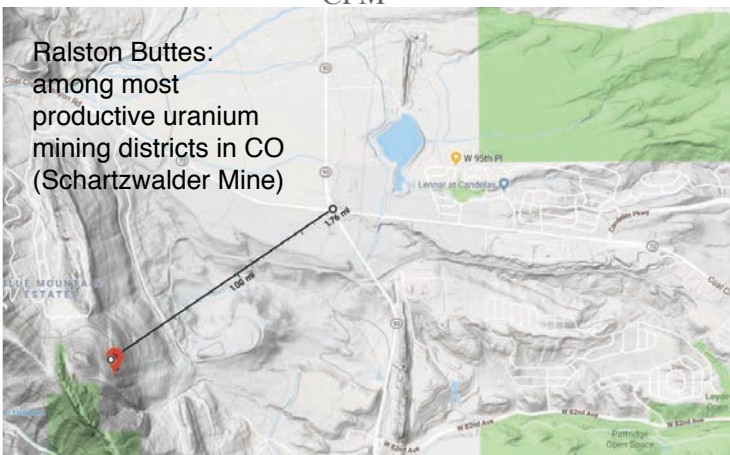
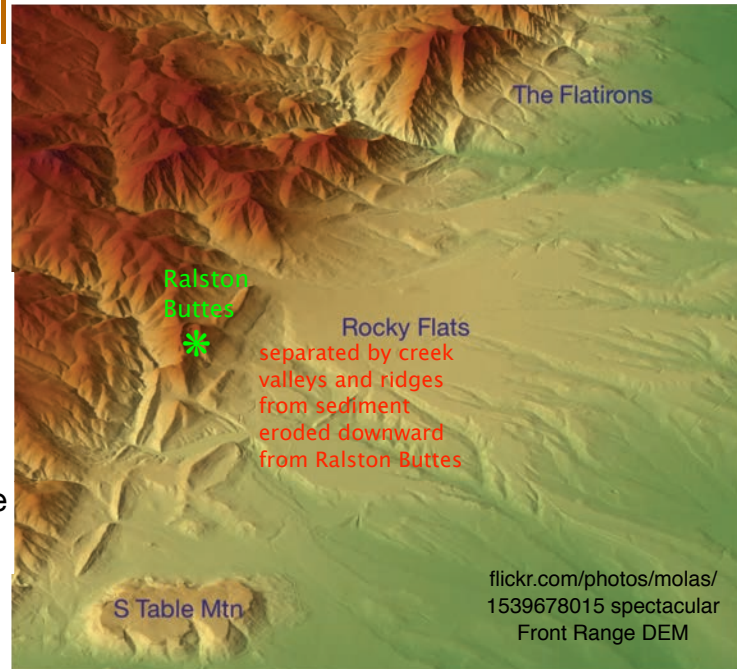
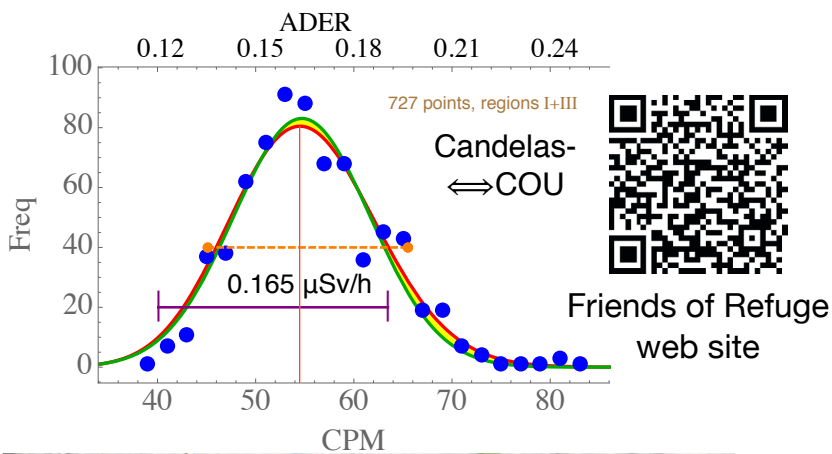
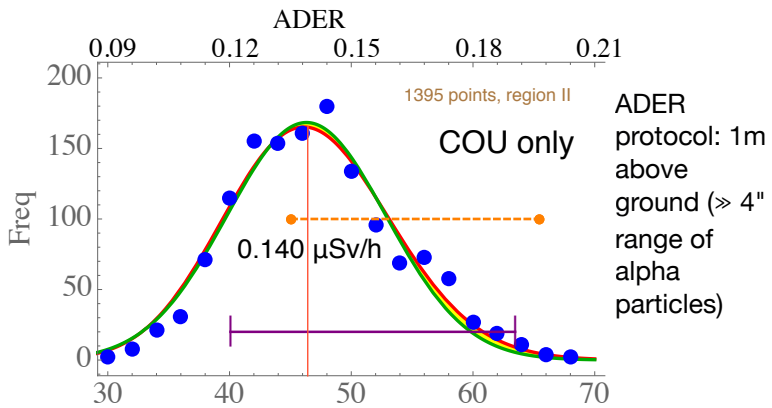


Rocky Flats soil radioactivity: not what you think



- Plutonium isotopes and americium 241 represent [NIST soil standards] <3% of *total soil radioactivity* within the Refuge; 97+% of radiation in windblown dust thus attributable to *natural* radioisotopes (^{40}K , thorium, uranium).
- ‘Ambient dose equivalent [radiation] rate’ (ADER) measured April 2019 on Refuge trails is 0.14 microSieverts per hour; place to place variability < 2%. June ADER measurements in COU (roads, facilities) also 0.14 $\mu\text{Sv/h}$: not surprising due to virtually identical terrain.
- Ambient radiation in COU, Refuge is 15% *lower* than on roads south and west (*not* downwind), presumably due to proximity to uranium deposits in Ralston Buttes.
- All measured ADER are *entirely consistent* with background radiation measured along Front Range (USGS, Stone *et al.*)
- ‘Hot particles’ (NIST soil standards) occur at rate of about 1 per 45 grams soil (=weight of golf ball). Health impact has been re-examined three times since mid-1970s, each time discarded as significant health risk because

1. Likelihood of inhalation is low (large particles don't make it, small are re-exhaled)
2. Animal measurements show net effect of a *uniform* equivalent dose is same as that from hot particles (within factor of 3 at most)



Don't get your info from conspiracy theorists! Ask for data and references.

D. M. Wood, June 2019 *Rocky Flats Stewardship Council member
Kim Griffiths*

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- Stone, J. M., Whicker, R. D., Ibrahim, S. A., Whicker, F. W., “Spatial variations in natural background radiation: absorbed dose rates in air in Colorado”, *Health Physics* 76 (5), pp. 516-523 (1999).