

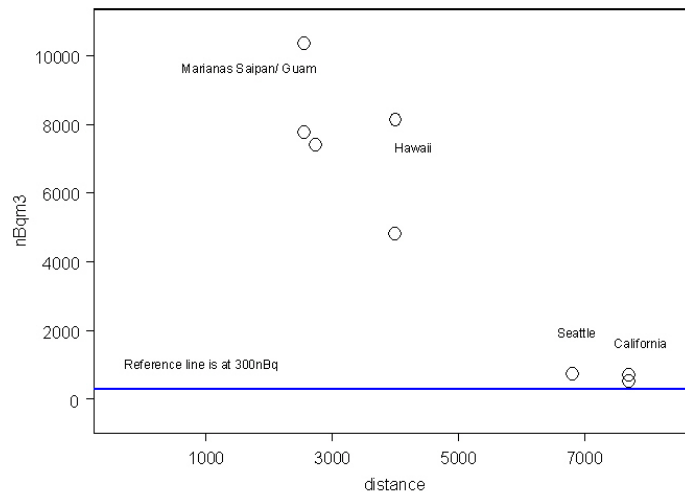
## First evidence of global contamination from alpha-emitting particulates from Fukushima. Elevated Uranium in air filters in Hawaii and Marianas islands

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The graph in Fig 1 below shows the trend in distance of Uranium in filters from Fukushima. This matter raises issues over the levels of Uranium and other alpha emitting particles like Plutonium in Japan and in nearer countries like Korea and China.

Fig 1. Uranium in filters. Trend with distance from Fukushima.

U-238 in High Volume Filters RADNET by distance from Fukushima  
nBq/cu metre air 18th to 24th March vs km distance. Plotted by C Busby



The graph above has been created from very limited data on uranium in high volume air sampler filters, data which is deeply hidden in the RADNET EPA website. It shows that uranium (and probably also therefore plutonium) particles are being released by the Fukushima catastrophe. They are appearing in California some 8000km away at levels which are greater than background.

Earlier bulletins and reports from me on the health consequences of exposures to fallout from Fukushima have focused on measurements of contamination from the beta gamma emitters Iodine-131 and Caesium-137. These nuclides have been reported in very low concentration in water, air and milk in many US States and also in Europe. Official radiation risk agencies have stated that levels do not give cause for concern over health effects and, for the USA and Europe, the ECRR risk model also provides some reassurance on this issue. However, from the beginning of the Fukushima catastrophe I have been pointing out that it is the alpha emitting particulates of Uranium and Plutonium which will have been released from the plants and from the destruction of the spent fuel assemblies that pose the greatest risk, and have recommended that these substances be monitored by laboratory analysis of high volume air sample filters. Studies by us after the 2<sup>nd</sup> Gulf war showed that uranium aerosol particulates were globally mobile and travelled to the UK from Iraq against the spin of the earth.

**The uranium particulates from Fukushima are of great concern since respirable (inhaled) aerosol uranium is now known to be extremely genotoxic due to photoelectron conversion of gamma radiation and because Uranium binds to DNA.**

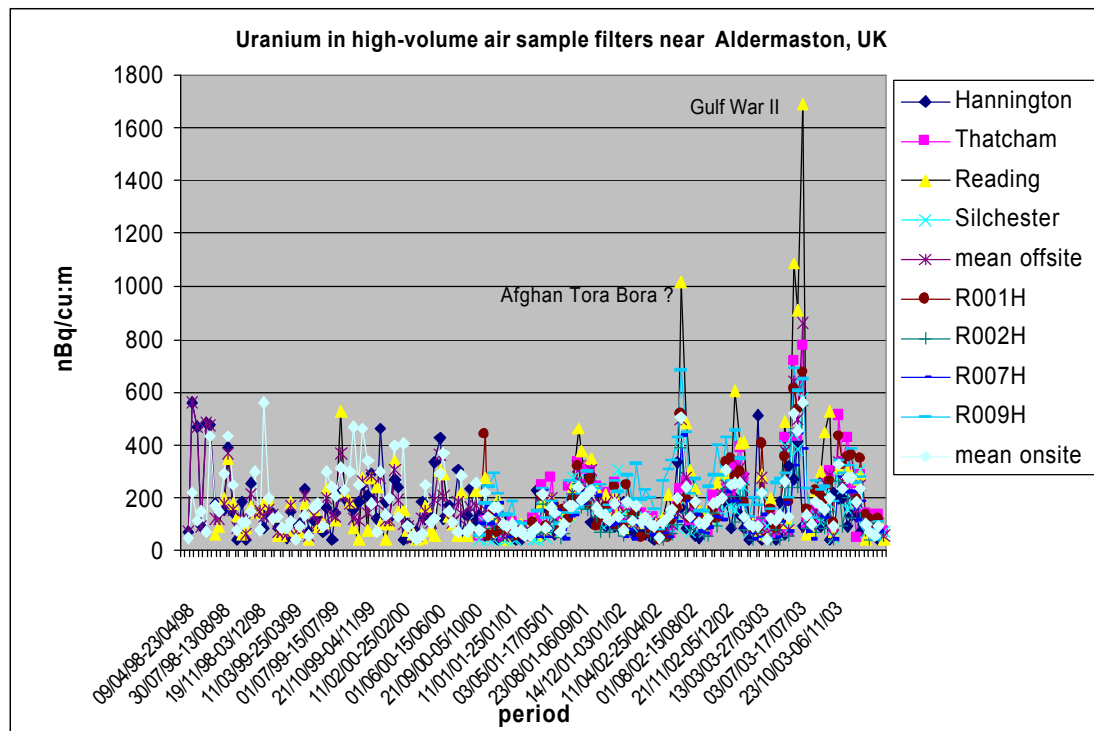
**It is therefore of concern that data has now appeared from the USA EPA that seems to confirm that uranium particulates are travelling at least as far as the Hawaii and probably across the USA. This is a very serious global health threat and air sample data need to be obtained from systems in the USA and in Europe as a matter of urgency.**

1. EPA results for U-238 and U-234 (converted to nBq/Cu Metre)  
<http://www.epa.gov/japan2011/docs/rert/radnet-cart-filter-final.pdf>

<b>Sampler and date</b>	<b>U-238</b>	<b>U-234</b>
CA Anaheim 15 March	ND	1628
CA Anaheim 20 March	ND	ND
CA Riverside 15 March	703	1300
CA San Francisco 18 March	518	ND
Marianas Saipan 21 March	10,360	4800
Marianas Saipan 24 <sup>th</sup> March	7770	7030
Marianas Guam 19 <sup>th</sup> March	ND	ND
Marianas Guam 23 March	7400	11,100
Hawaii Oahu 23 March	4810	5920
Hawaii Kauai 21 March	8140	7030
WA Seattle 18 March	ND	740
Mean AWE (UK) levels 1998-2002	<200	ND

The data seem to show that air concentrations in the Pacific are significantly higher than levels in California and Washington and also that levels appear absolutely high. The problem is that EPA do not show any early data which can be employed as a control. In Fig 1 below we show the increases in uranium in the Aldermaston Berkshire filters over the period of the 2<sup>nd</sup> Gulf war (Busby and Morgan 2006).

Fig 2 High Volume air sample filter results from detectors near the Atomic Weapons Establishment site at Aldermaston Berkshire. nBq/m<sup>3</sup>



Clearly the levels in the Pacific air samplers are much higher than the levels found in the AWE filters even at the time of the Gulf War.

If we assume that the background level in the Pacific is around 300nBq/m<sup>3</sup> then the detection of between 4000 and 10,000nBq/m<sup>3</sup> represents a very significant and alarming increase in Uranium concentration and suggests (a) that further measurements of uranium particulates should be carried out globally and (b) that the levels of particulates in Japan and nearby countries within 2000km radius may be dangerous.

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