Cosmic Radiation Dose

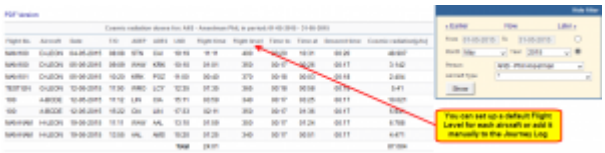
Altitude (feet)	Kilometre equivalent	Hours at latitude 60°N	Hours at equator
27000	8·23	630	1330
30000	9·14	440	980
33000	10·06	320	750
36000	10·97	250	600
39000	11·89	200	490
42000	12·80	160	420
45000	13·72	140	380
48000	14·63	120	350

Cosmic Radiation table - hours of exposure for effective dose of 1 millisievert (mSv)

Our cosmic radiation report is a simple version based on **ACJ OPS 1.390 (a)(1)**

Our main source of dosage in the function of **altitude** and **latitude** is the attached table (screenshot on the right). Our algorithm works in the following way:

1. We take the maximum altitude for the flight (to be on the safe side of the calculation - to overcalculate rather then underestimate the dosage). Technically speaking, we have data about the maximum flight level (altitude) but we don't know what was the exact amount of time the aircraft was cruising at this altitude so we take the whole flight time as it was on that level.
2. If the aircraft is flying between two airports of latitude 1 and latitude 2, we take the greater value for the whole calculation for the same reason as in point 1 (majority of flights are in the very similar latitude ranges anyway - Asia → Europe → North America). Unfortunately we don't have table for southern hemisphere so we assumed that dosage is in the same function as it is on northern one.
3. If we have latitude other then 60 and 0, we approximate the table using linear function.
4. We don't take into account the solar activity or any other factors.



Cosmic Radiation Dose - data displayed for the individual crew member

The **method** of calculation is very simple.

The data we have (and which can be used for the calculation are as follow):

- altitude
- latitude of airport of departure and latitude of airport of destination
- time the travel was taken and duration of the flight.

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