Impact of High Altitude Ultraviolet Radiation on Functionability of Flight Crews

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Abstract

The philosophy of MIRCE Science is based on the premise that the purpose for the existence of any functionable system is to do functionability work. The work is done when the expected measurable function is performed through time. In MIRCE Science a flight crew is considered as an element of a flying system type. MIRCE Mechanics is a part of MIRCE Science that focuses on the scientific understanding of the mechanisms of the interactions between functionability elements and the consequences on functionability performance. The research performed shown that pilots and flight crews on aircraft is twice as likely as the general population to develop life-threatening melanoma skin cancer. On average, those who developed melanoma were 42% more likely to die compared with the general population. With progress in aviation technology, aircraft will fly longer and at higher altitudes attracting more and more passengers demanding more and more flights. Hence, the main objective of this paper is to investigate the mechanism of interactions between the high altitude ultraviolet radiation on functionability of flight crew.

1. Introduction

2. Ultraviolet Radiation

2.1 Ionisation

2.2 Ultraviolet Effects

2.3 Environmental factors that influence the UV level

2.4 Ozone depletion and UV radiation level

3. Impact of UV radiation on life on earth

3.1 Some effects of UVB radiation on the biosphere

3.2 Impact of UV radiation on human skin

3.3 Molecular mechanisms of ultraviolet radiation carcinogenesis

3.4 Impact of UV radiation on human vision
4. Impact of UV radiation of flight crew

5. UV radiation and aircraft windscreen

6. Impact of long term UV exposure on the eyes of the flight crew

7. Sunglasses as Eyesight Damage Prevention

8. Conclusions

9. References


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