



## **IN-TOUCH**

### **COSMIC RADIATION**

Dear members,

In 2013, the Company hired PcAire to monitor Flight Attendants' exposure to cosmic radiation, to create a repository of data. The Company has also invited the Union to participate in finding ways of addressing this hazard. As a result, some of you have since received letters from the Company advising you that your exposure is nearing 6mSv, and that you consult with your base Manager. Accordingly, our members have said that they want their Union to provide them with more information about cosmic radiation.

We hope that the following Q & A will answer some of your questions and complement the information you already received from your joint Health & Safety Committees, and from the Company. As we continue to discuss this important topic with the Company, procedures may be altered as required. We encourage you to voice any constructive feedback or questions to your base Safety Manager and/or your Local Union Health & Safety Committee Representative. As your Union Health & Safety representatives, we remain committed to continue our work alongside our safety counterparts from the Management side on this issue.

#### **What is cosmic radiation?**

*We refer you to the following links below which provide detailed yet easily comprehensible explanation from the Institut de radioprotection et de sûreté nucléaire in France, and the FAQ section on the PcAire website.*

Institut de radioprotection et de sûreté nucléaire in France:

<https://www.sievert-system.org/?locale=en#Rayonnement>

FAQ Section on the Pcaire Website:

<http://aircanada.pcaire.com>

## **What is background radiation?**

*Background radiation includes all of the radiation that you may be exposed to on a daily basis. The average Canadian may be exposed to as much as 3mSv of background radiation on an annual basis. Regular terrestrial exposure to cosmic radiation, medical and dental x-rays, radioactive minerals and gases such as radon, foods containing such minerals - even your glow in the dark watch contributes to your background radiation exposure. It is important to note that background radiation on its own is not considered a general threat to one's health in terms of cancer risk by Health Canada.*

## **Can I completely avoid cosmic radiation or background radiation?**

*The short answer is no. Cosmic radiation is natural and all around us, even at ground level. But flying at altitude does expose us to higher levels. By managing your flights, you can control your overall exposure to a certain degree.*

## **How does flying affect my exposure?**

*Cosmic radiation exposure increases with altitude, and latitude. Therefore, it generally follows that the higher you fly and the closer to the poles that the route goes, the higher the exposure will be. Depending on these factors, exposure to cabin crew can be up to a hundred times higher than at ground level. Cosmic radiation is also affected by the 11-year solar cycle. During the more active years in this cycle, radiation exposure may be higher. Working night flights does not reduce exposure since many of the galactic rays contributing to our exposure come from other stars in solar systems far beyond our own.*

## **Can cosmic radiation make me sick?**

*Cosmic radiation is an ionizing radiation. Any amount of exposure to ionizing radiation can contribute to developing illness. Current studies tend to show a low risk factor (generally a 1% additional risk over the course of a full career); however, it does remain a risk. As a cabin crew member, it is important to monitor your flights and familiarize yourself with the background radiation you are exposed to at home in order to obtain a picture of your overall exposure to ionizing radiation.*

## **Is it possible to reduce my exposure to background radiation?**

*YES. Your physician already takes your exposure into consideration when deciding whether or not to request medical diagnostic procedures that expose you to x-rays. Another common controllable source of radiation exposure is radon gas.*

## **What is radon gas?**

*It is a radioactive gas that is sometimes found in basements depending on where you live. Long-term exposure can contribute to developing lung cancer. Radon test kits can be purchased at most hardware stores*

for a reasonable price, and options exist to remedy a basement affected by this naturally occurring health hazard. For more information, please consult the federal government's page dedicated to radon:

<http://healthycanadians.gc.ca/security-secure/radiation/radon/home-test-maison-eng.php>

## **I bring my lunch to work, and I am concerned about residual radiation in my food from the baggage screening devices. Where can I find information about this?**

*In practical terms, one has a vastly greater and more meaningful ability to control their exposure to ionizing radiation by monitoring and/or altering their flight schedule. However, for those who wish to learn more we suggest consulting the following sources:*

CATSA, the national airport screening agency documents the radiation dose of its baggage scanning equipment in the following document:

[http://www.catsa.gc.ca/sites/default/files/imce/2\\_XRay\\_safety\\_awareness\\_handbook-EN.pdf](http://www.catsa.gc.ca/sites/default/files/imce/2_XRay_safety_awareness_handbook-EN.pdf)

The following information is provided by the FAA:

<http://www.fda.gov/RadiationEmittingProducts/RadiationEmittingProductsandProcedures/SecuritySystems/ucm116421.htm>.

*In addition, many foods in the US undergo routine irradiation in order to prevent foodborne illnesses. The procedure is widely considered to be safe, however those concerned can learn how to recognize and avoid these by consulting the information published by the US Food and Drug Administration:*

<http://www.fda.gov/food/ingredientspackaginglabeling/irradiatedfoodpackaging/ucm261680.htm>

## **How can I track my exposure?**

*Since 2013, the Company has contracted PcAire to monitor the exposure of cabin crew to cosmic radiation. The PcAire program and methodology is endorsed by Transport Canada's Commercial and Business Aviation Advisory Circular (CBAAC) No. 0183R. You can access the system by logging into **ePub > About You > Hazard Prevention Program > Cosmic Radiation** The system can also be accessed directly by visiting <http://aircanada.pcaire.com> .*

## **Exposure to ionizing radiation is cumulative.**

*The effects of ionizing radiation passing through your DNA are cumulative, and therefore whatever exposure you receive stays with you for the rest of your life. Bringing down the exposure number in PcAire represents a reduction in your ongoing exposure – not your past exposure.*

## **What does PcAire show?**

*In the PcAire portal you will be able to view your exposure by flight, and within any selected period between*

2010 and now. Results are generally uploaded with a one-month delay in order for scientific readings and flight data to be uploaded into the system.

### **What is not shown in PcAire?**

The PcAire portal does not take into account your exposure to background radiation, nor does it include any flights that are not part of your flying schedule in the crew scheduling system (ex: commuter flights).

### **How can I predict what my exposure will be when bidding or taking commuter flights?**

The PCAIRE portal has recently been updated allowing you to view **approximate** exposures for any city pair, based on the average levels for that route over the previous three months.

### **What are the recommended exposure limits?**

The Transport Canada CBAAC No. 0183R outlines an intervention level of **6mSv** where the Company will take measures to alter the flying schedule of the employee affected so as to minimize exposure for the duration of the calendar year. Currently employees receive a letter from management when they are approaching the 6mSv level. The CBAAC also sets a maximum limit of 20mSv per year, not to exceed 50mSv within any five-year period.

### **Are there any differences for pregnant women?**

YES. It is advised that pregnant women not exceed 1mSv of additional exposure during the duration of their pregnancy. The amount of time it takes to achieve this will vary depending on the year, solar events, and type of flying. As data in PcAire is uploaded with a one-month delay, we recommend speaking with your base Manager to assist you with your bidding and to explore your occupational health rights under the Canada Labour Code.

### **If I receive a letter, should I speak with my base Safety Manager?**

Yes! This is not a disciplinary meeting. It is a meeting that is offered by the Company as a chance to explore your options. The company has committed to allowing your Union Health & Safety Representative to be present to ensure that you are aware of the many resources that are now available to you through the Company and Union joint PBS and Health & Safety Committees.

### **Information Sources and Further Reading:**

#### **PCAIRE**

<http://aircanada.pcaire.com>

#### **Institut de radioprotection et de sûreté nucléaire**

[www.sievert-system.org](http://www.sievert-system.org)

## Health Canada

<http://www.hc-sc.gc.ca/ewh-semt/radiation/comsic-cosmique-eng.php>

## Transport Canada

<https://www.tc.gc.ca/eng/civilaviation/standards/commerce-ohs-radiation-2063.htm>

## *FAA What Aircrews Should Know About Their Exposure to Cosmic Radiation*

[https://www.faa.gov/data\\_research/research/med\\_humanfacs/oamtechreports/2000s/media/0316.pdf](https://www.faa.gov/data_research/research/med_humanfacs/oamtechreports/2000s/media/0316.pdf)

## *FAA Advisory Circular On In-Flight Radiation Exposure*

[http://www.faa.gov/documentlibrary/media/advisory\\_circular/ac\\_120-61b.pdf](http://www.faa.gov/documentlibrary/media/advisory_circular/ac_120-61b.pdf)

| <b>Your Union Health &amp; Safety Committee Representatives</b> |                        |  |              |
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**Working towards a safer workplace for everyone!**

**Air Canada Component of CUPE  
Occupational Health & Safety Committee**