

## The Boice Report #36



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### ICRP Main Commission Down Under



**A Night at the Opera—Sydney**  
Photo courtesy of John Boice

As the “Boice Report” ends its third year of monthly columns, I’m in Sydney, Australia, with the Main Commission of the International Commission on Radiological Protection (ICRP). ICRP was founded in 1928, but this is the first time the Main Commission has met down under. The city is vibrant, the Opera House iconic, the animals exotic, the Aussies friendly, and the meetings productive.

A highlight was meeting with representatives of the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) and the uranium mining companies to discuss the practical implications of ICRP recommendations. There were also in-depth discussions on cosmic radiation in aviation, the development of dose coefficients (including radon), and the development of fetal and pregnant women reference phantoms.

ICRP took a page from the National Council on Radiation Protection and Measurements ([NCRP](#)) play book and has developed [Special Liaison Organizations](#) (SLOs) to formally engage with organizations throughout the world with an interest in radiological protection. The two North American SLOs include the NCRP, consistent with our [congressional charter](#), which emphasizes a close relationship with ICRP, and the Conference of Radiation Control Program Directors, which encompasses radiation professionals in state and local government. ICRP also enthusiastically responded to a request from Don Cool (United States) to form a task group that will in principal provide comment on the ongoing work of [NCRP Council Committee 1](#), which is developing radiation protection guidance for the United States.

**Uranium Industry in Australia.** A workshop was held with [ARPANSA](#) and the [Minerals Council of Australia](#), followed by discussions on radiological protection in the mining environment. Australia is one of the leading producers of uranium in the world, with underground, open pit, and in situ operations. The industry strives to maintain a high level of worker and public protection and ICRP changes in recommendations, dose conversion factors (from working level month [WLM] to millisievert [mSv]), and dosimetric models (for radon and progeny) are taken seriously.

There was a plea for ICRP to appreciate the consequences (intended and unintended) of the changes made in ICRP recommendations and models. Comprehensive discussions followed on changing aerosol size distributions in mine environments, epidemiologic findings and relevance, cigarette smoking effects on risk, risk perception, communication needs, and more. There are other occupations, such as [tour guides in caves](#), where the radon exposure is higher than in mines. Interestingly, the comprehensive evaluations of lung cancer risk in underground miners developed in the [BEIR VI report](#) and relevant [scientific papers](#) considered by ICRP in its recent radon report ([Publication 126](#)) included the [Radium Hill mine](#) in Australia. Australia is one of the few countries with existing expertise in radiation protection as it pertains to mining environments, but the expertise is rapidly being lost (as is the case for [radiation professions in general](#) throughout the world), and there is a strong need to encourage and train the next generation!

**Cosmic Radiation in Aviation.** It may not be appreciated that pilots and air crew receive more radiation dose, collectively, than members of any other industry or occupation ([NCRP Commentary No. 12](#); [NCRP Report No. 160](#)). The exposure comes during [high-altitude flights](#) where cosmic radiation exposure is increased. The exposure is mainly from neutrons, secondary to proton bombardment in the atmosphere. High-energy heavy particles (e.g., iron) contribute little to dose at these altitudes. Average effective doses are about of  $2.5 \text{ mSv y}^{-1}$  with maximums about  $6\text{--}7 \text{ mSv y}^{-1}$ . Protection measures are challenging in this existing situation because the only practical way to reduce exposure is to reduce flying time for the individual. The collective dose, however, would not necessarily decrease when an individual reduces his or her flight time because someone else would be required to fly the plane or handle the crew responsibilities. The issues of providing guidance for pregnant flight crew are complex, considering that pregnancy is defined in many countries at the time it is declared. Stay tuned for the upcoming public consultation of this most interesting report and [discussion on the topic](#) at the 2015 Health Physics Society Annual Meeting!

**ICRP Committee Work.** ICRP has five active committees on radiation effects, doses, medicine, application, and environment. The program is dynamic and I don't have the column space to present even a glimmer of the activities, so the reader is referred to the [ICRP website](#) for details.

**Radiation Dose.** I thought the Committee 2 work might be most interesting to the readership. Ongoing task groups are on [dose conversion coefficients from external sources](#), [internal dose coefficients](#), [computational phantoms and radiation transport](#), and [use of effective dose](#). Publication 128 on *Radiation Dose to Patients From Radiopharmaceuticals* is soon to be published.

**October 2015 in Seoul.** The 3<sup>rd</sup> International Symposium on the System of Radiological Protection will be held 20–22 October 2015 in Seoul, Korea. The program covers radiation doses, radiation effects, medicine, ethics, and existing exposure situations. [Check it out!](#)

### ICRP Main Commission in Sydney, Australia, 15 April 2015



Left to right, Rob Martin (ICRP Intern), Nobuyuki Hamada (ICRP Assistant Scientific Secretary), Hans-Georg Menzel (Switzerland), Eliseo Vañó (Spain), Carl-Magnus Larsson (Australia), John Boice (NCRP, USA), Ohtsura Niwa (Japan), William Morgan (USA), John Harrison (England), Christopher Clement (Scientific Secretary), Hua Liu (China), Jacques Lochard (France), Donald Cool (USA), Jai-Ki Lee (South Korea), and Claire Cousins (Chair, England). Missing: Sergey Romanov (Russia).  
Photo courtesy of Justin Boice