More CHERPAC Results for the Agricultural Scenario

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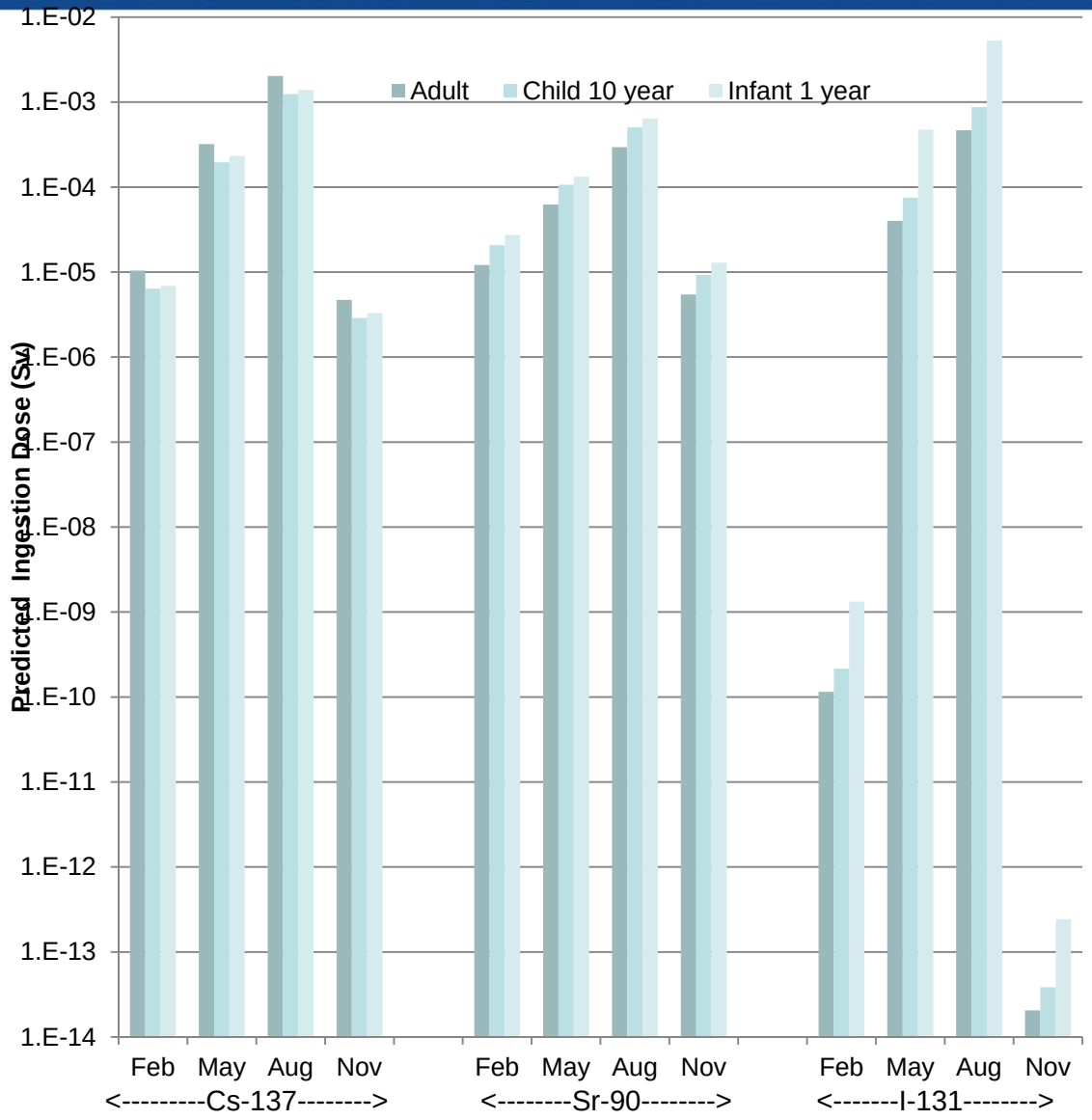
Introduction

- The features and capabilities of CHERPAC code were introduced to this Working Group (WG) in January 2010
- Most of CHERPAC's results were presented in January 2011
- New additional results are presented here.

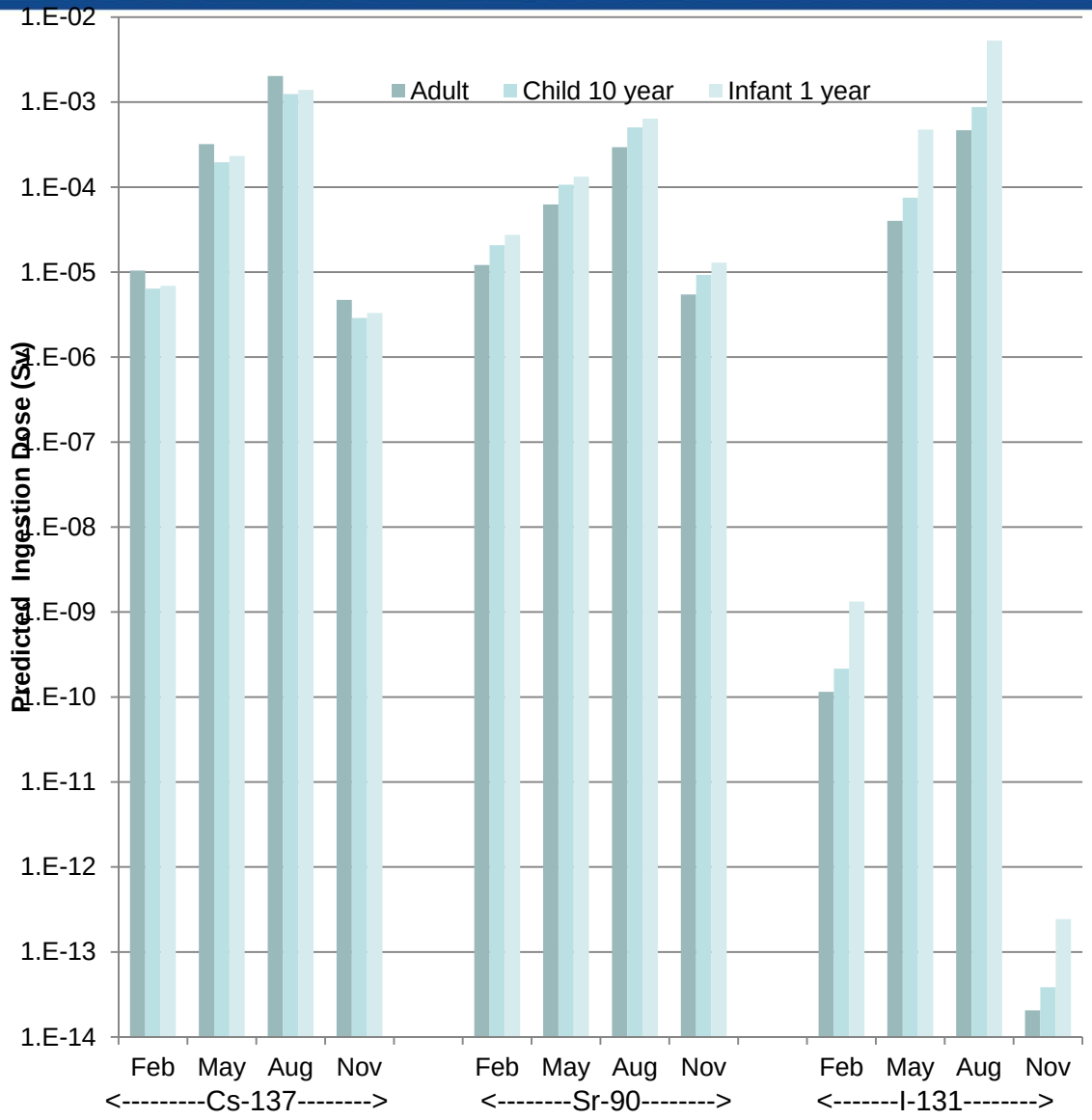
Results: Predicted ingestion dose at the end of two years: dry deposition, agricultural ecosystem, four deposition months



- Results discussed here are ingestion doses from Cs-137, I-131, and Sr-90 to adult, child, and infant at the end of two years for the agricultural ecosystem with dry deposition occurring at different times of the year.

- **Effect of radionuclide:** Different radionuclides impart different doses because they have different deposition properties, transfer rates, accumulation rates, DCFs and half-lives. For example, because of its short half-life, the dose from I-131 from deposition in the fall or winter is significantly lower than doses from Cs-137 and Sr-90, which, because of their long half-lives, exhibit similar doses regardless of season of deposition.

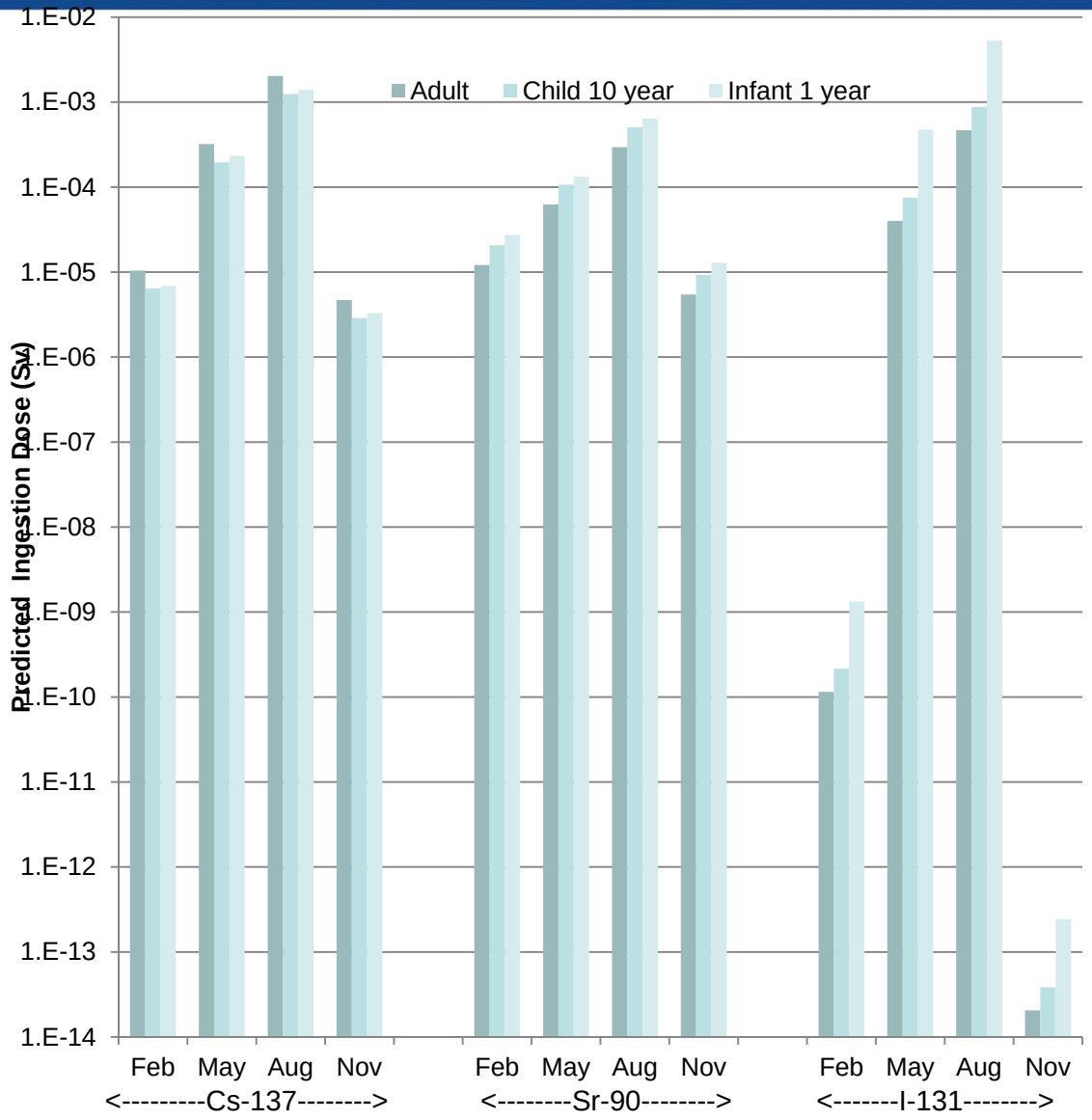
Results: Predicted ingestion dose at the end of two years: dry deposition, agricultural ecosystem, four deposition months (continued)



- **Effect of deposition month:** Predicted doses from the agricultural pathways are highest if deposition happens in summer (August), and lowest if it happens in fall (November). For summer deposition, the plants are nearly ready to be harvested, whereas no plants are growing in the fall, and a lot of activity is lost from the soil before the ground is seeded in the spring.

- **Effect of deposition type:** For agricultural ecosystems, if the deposition occurs in spring or summer, the ingestion dose under dry conditions is up to three times higher than that under heavy rainfall conditions, because radionuclides adhere better to dry plant leaves.

Results: Predicted ingestion dose at the end of two years: dry deposition, agricultural ecosystem, four deposition months (continued)



- **Effect of age group:** For the agricultural pathways, the dose from Cs-137 is highest for adults, whereas the doses from Sr-90 and I-131are highest for infants. This is because of the relative food product concentrations, intake rates and DCFs. The relative groundshine doses to different age groups depend mainly upon the relative DCFs.

- **Effect of exposure pathway:** Ingestion pathways give more dose if the deposition occurs in the spring or summer months than that if the deposition occurs in the fall or winter months. Dose from the groundshine exposure pathway is not season dependent.

- **Effect of Ecosystem:** Humans living in an agricultural ecosystem will receive higher doses than those living in a forest ecosystem.

Acknowledgement

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