

ASEAN NPSR 2017 Benchmark Problem Assessment

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NPP2

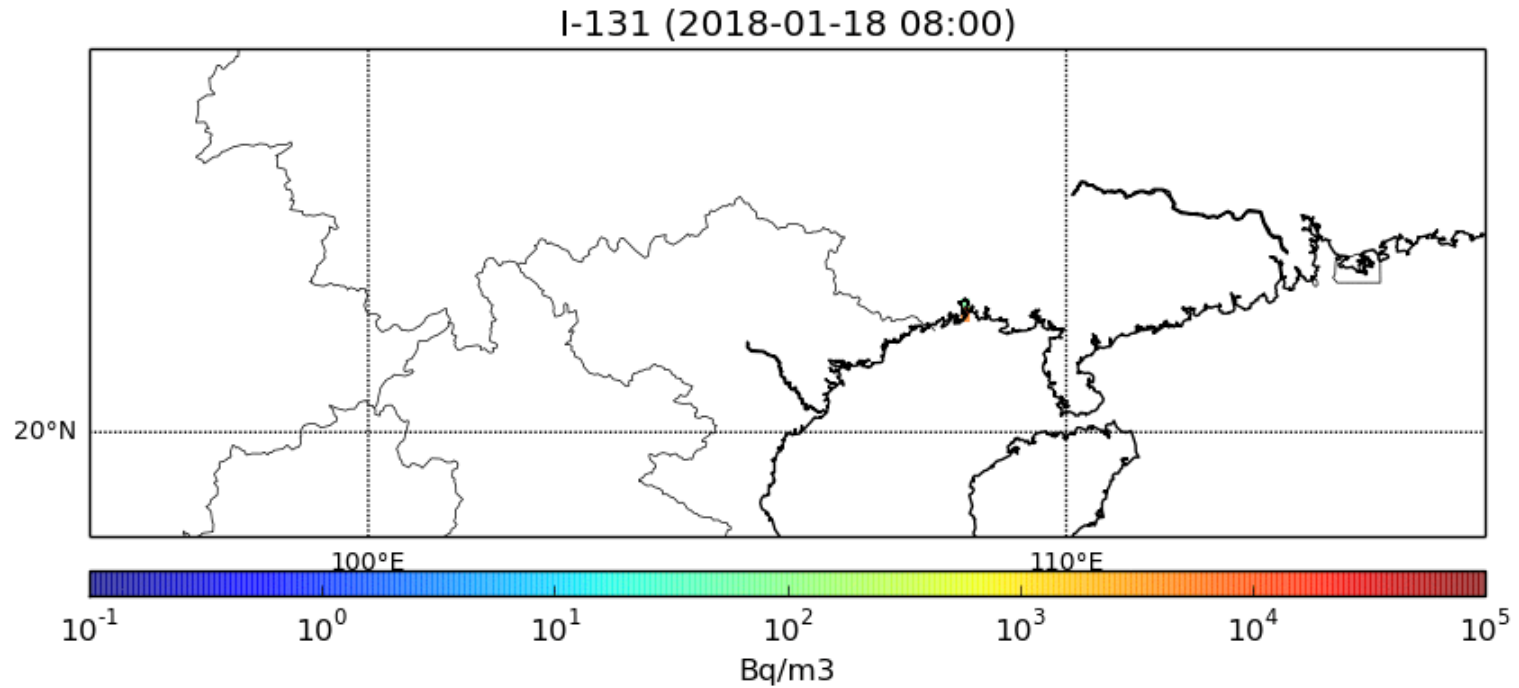
Release characteristics

- Location: 21°40'15"N, 108°33'30"E
- Release amount
- I-131: 1×10^{16} Bq (short-term consequences), aerosol only
- Cs-137: 6×10^{13} Bq (long-term consequences)
- Release starting time: January 18, 2018 at 15:00 (UTC+8)
- Release period: 26 hours
- Release height: 10 meters
- Heat content: 500 kW
- Weather data specification
- Coverage: 6.5-32.0°N, 95.5-122.5°E
- Resolution: 0.5° x 0.5°

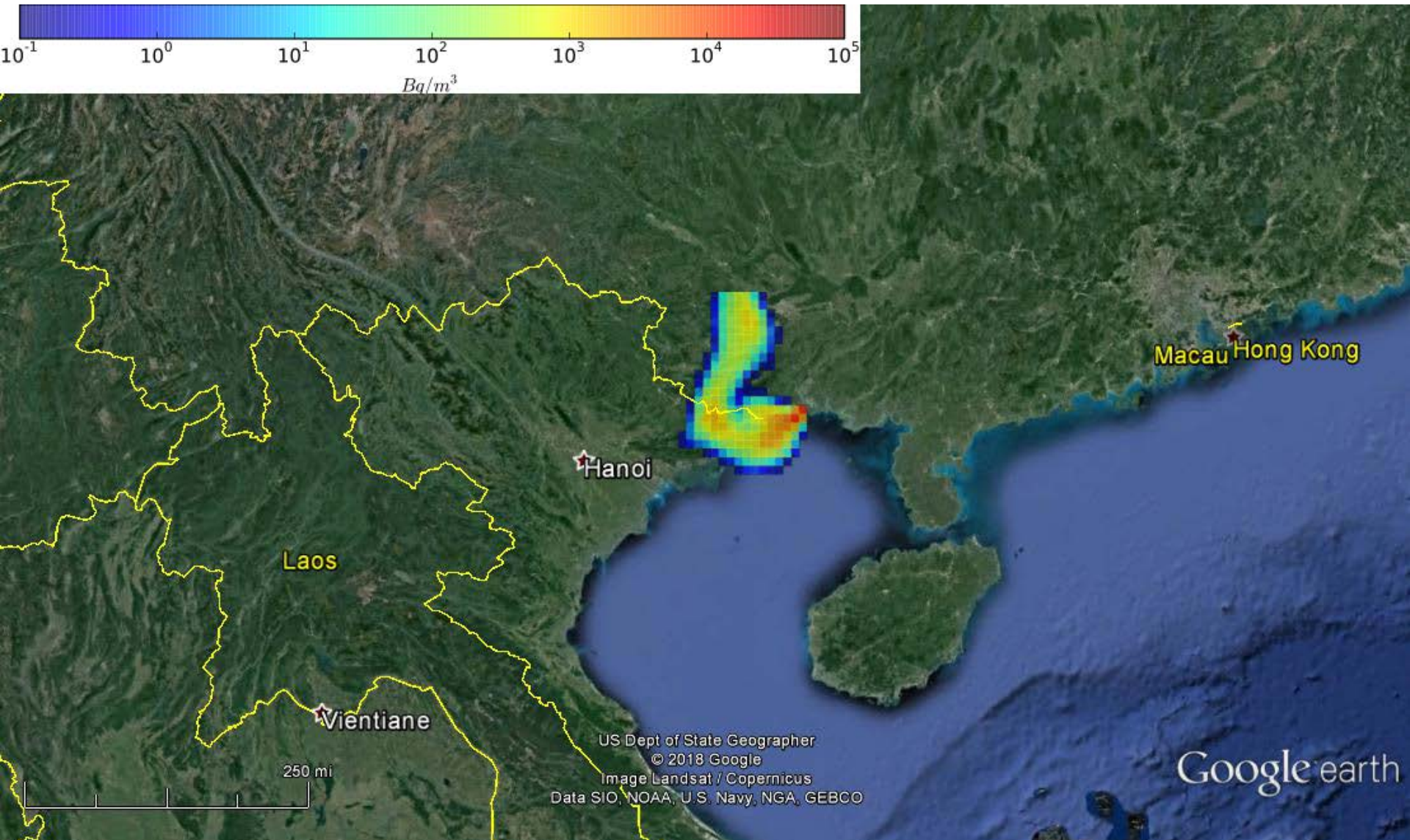
NPP2

- Results to be compared
- Distribution maps of the following values at 1 day from the release starting time
 - (Time-integrated) air concentration (Bq/m^3)
 - (Time-integrated) ground concentration (Bq/m^2)
 - exposure dose
 - external gamma dose rate due to cloudshine (Sv/s)
 - external gamma dose rate due to deposition (Sv/s)
 - internal irradiation due to inhalation (Sv/s)
 - dose rate from all pathways

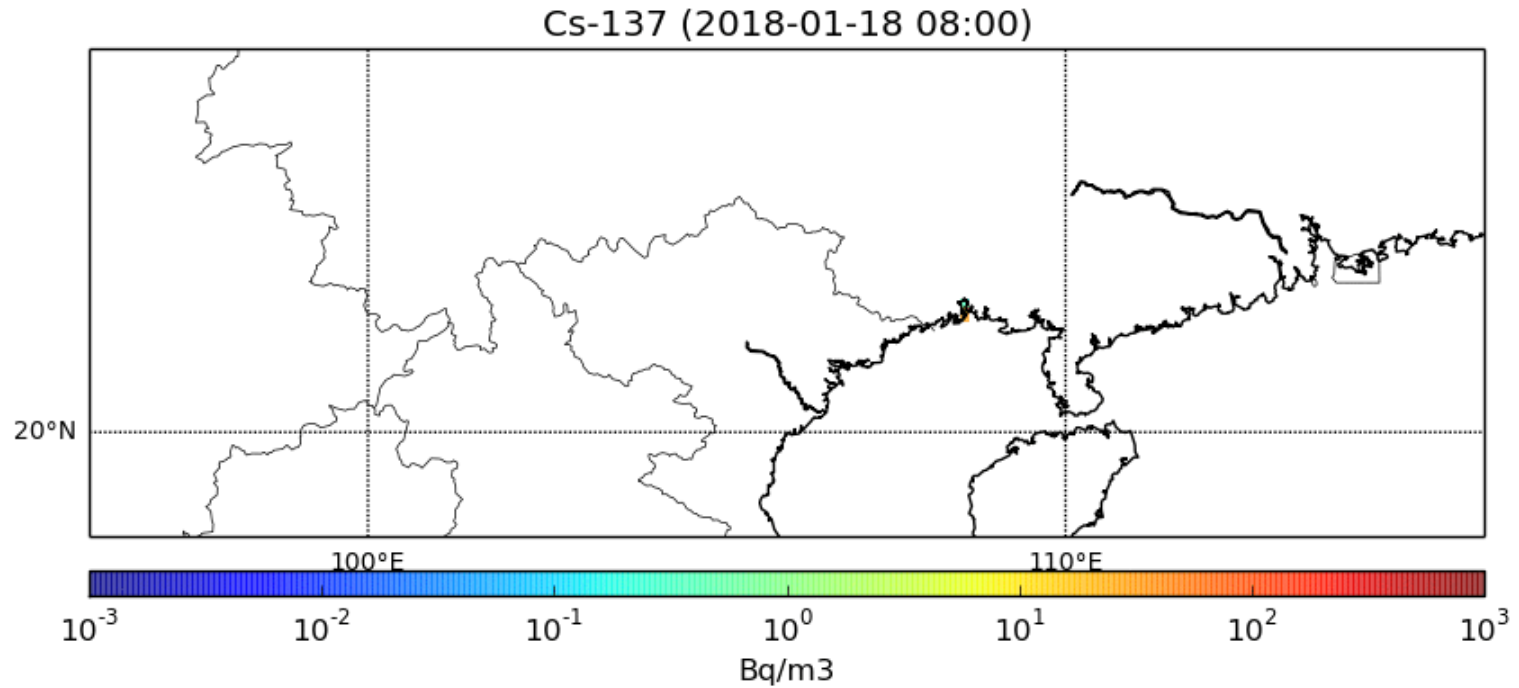
Results –Air Concentration (I-131; 1 day)



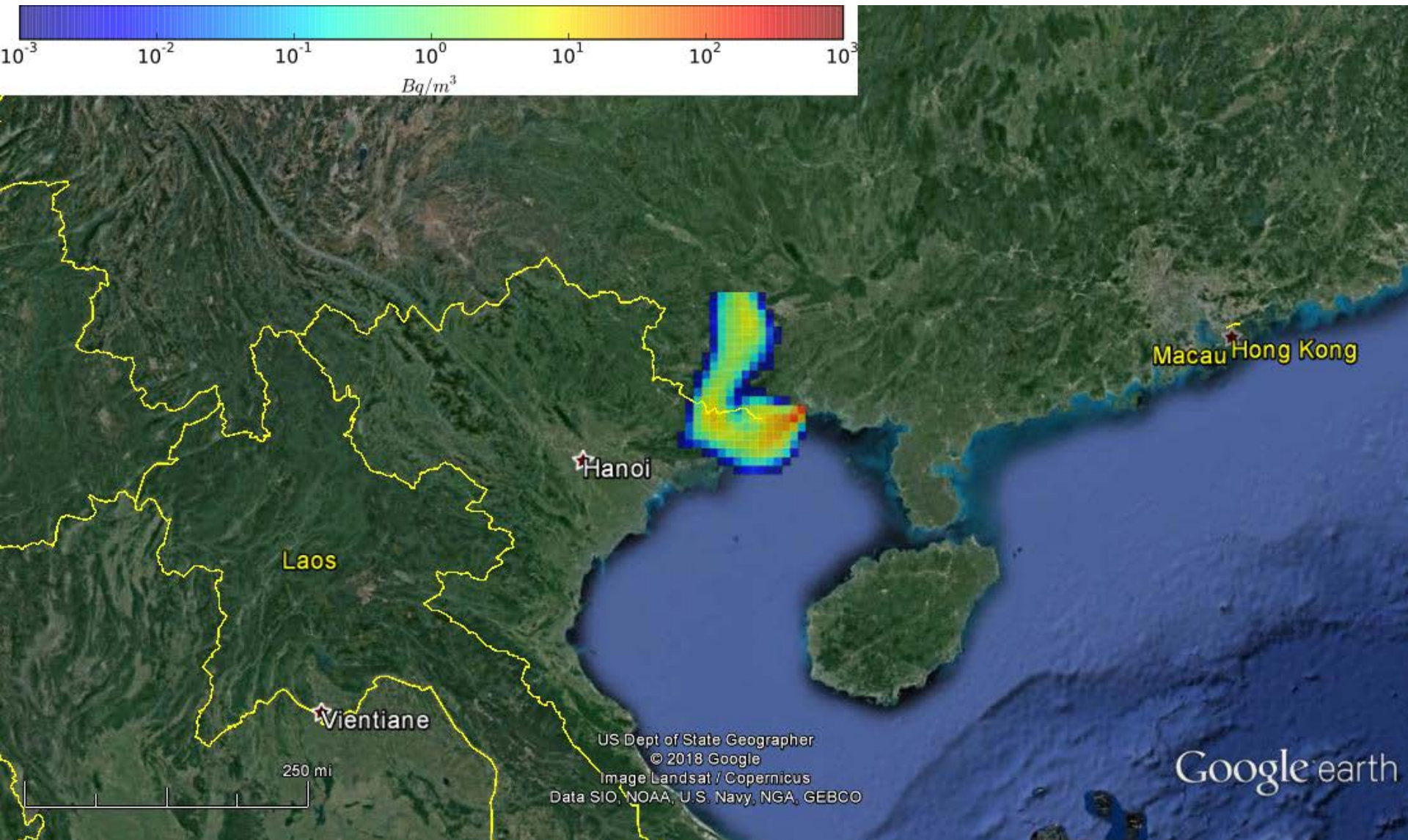
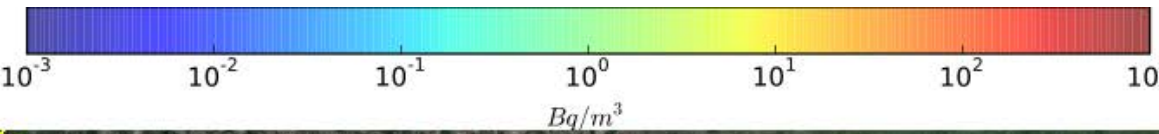
Results –Air Concentration (I-131; 1 day)



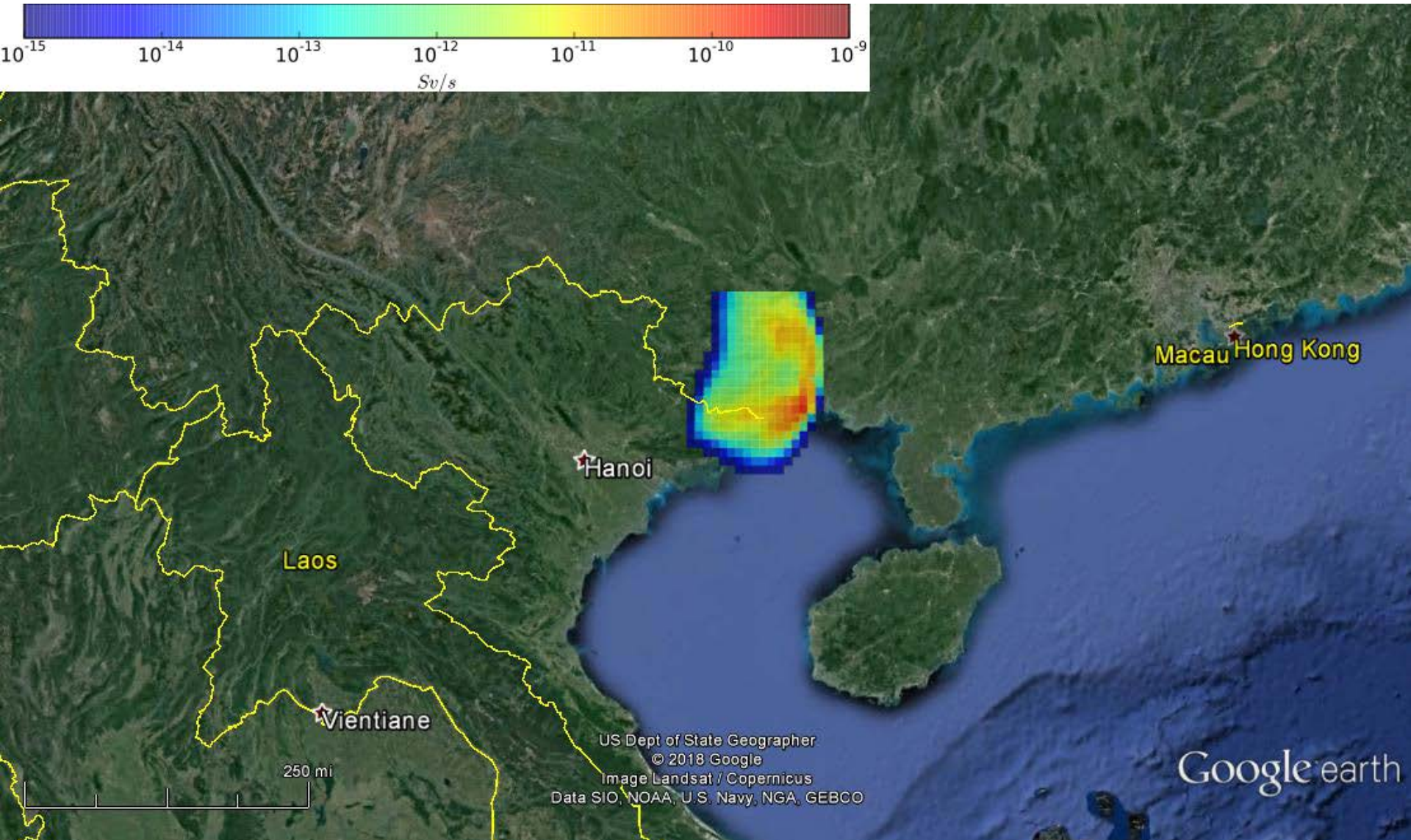
Results –Air Concentration (Cs-137; 1 day)



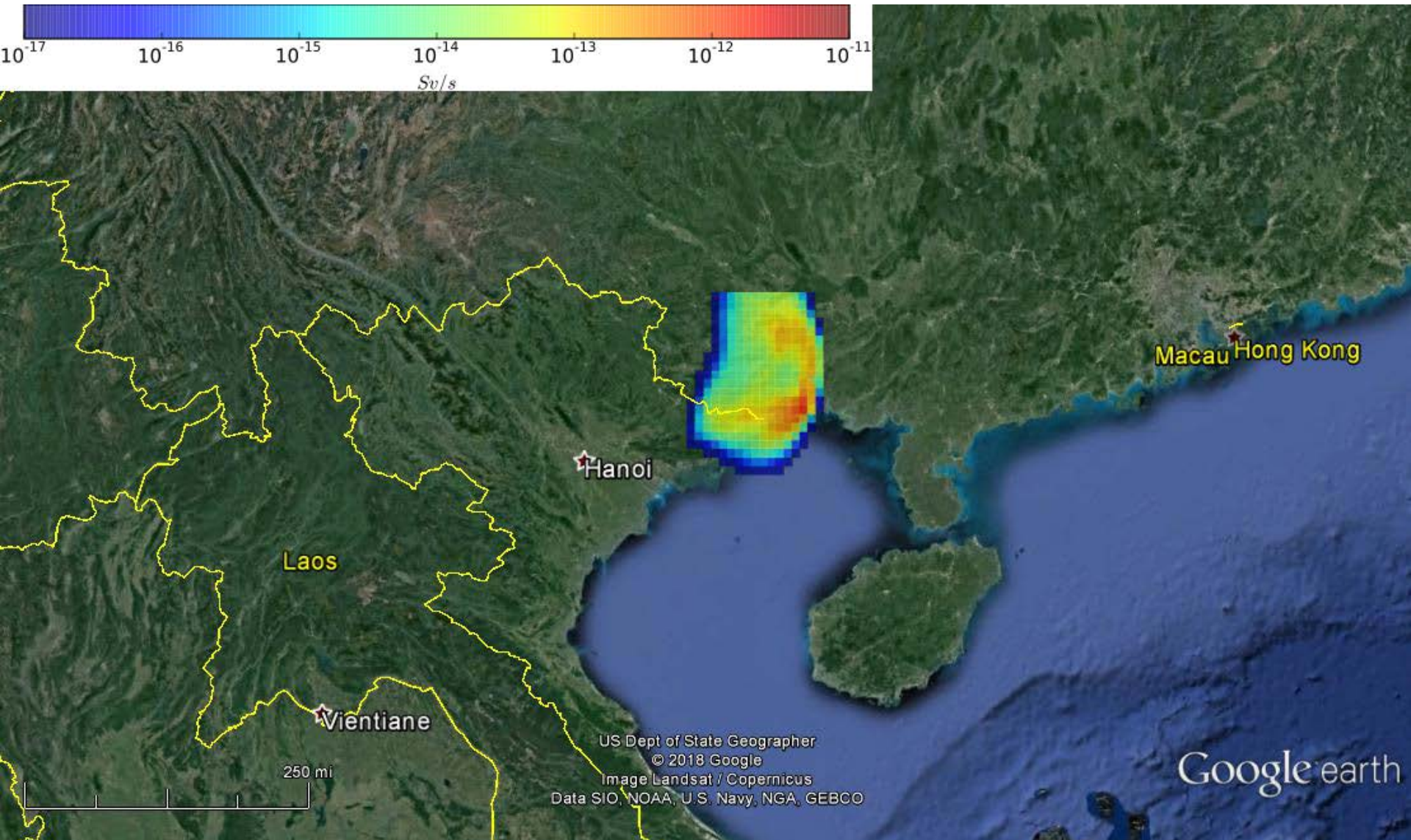
Results –Air Concentration (Cs-137; 1 day)



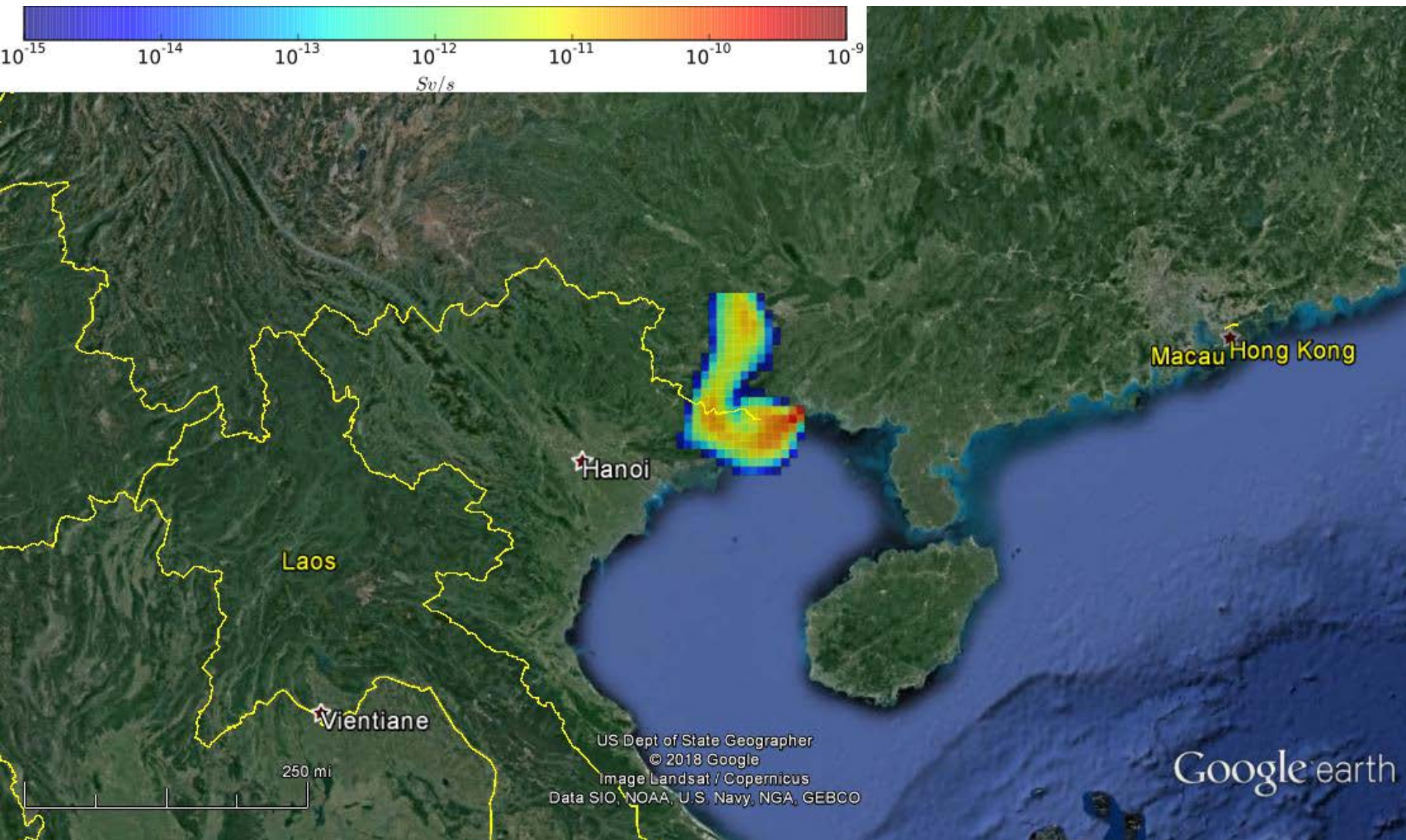
Results – Ground Concentration (I-131; 1 day)



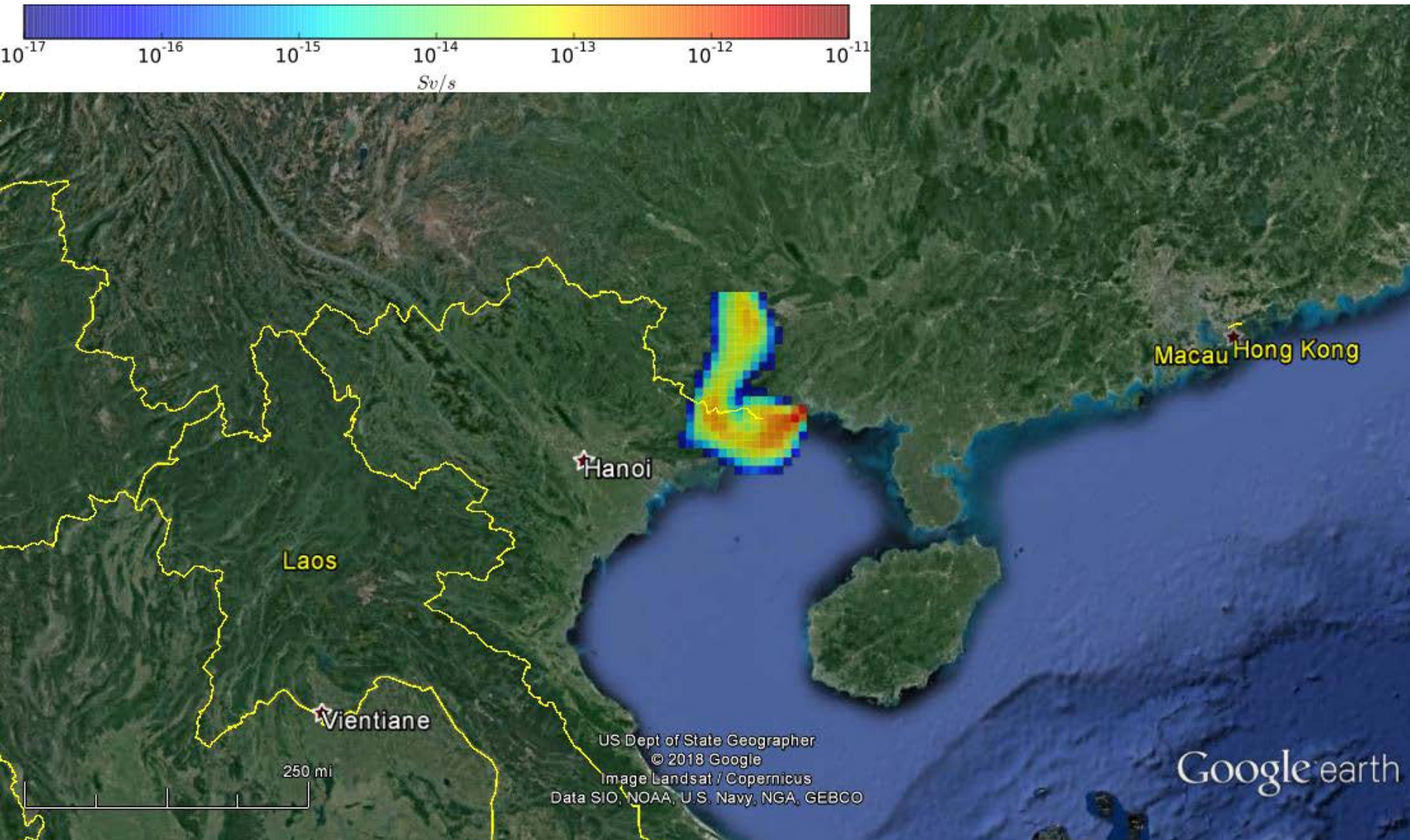
Results – Ground Concentration (Cs-137; 1 day)



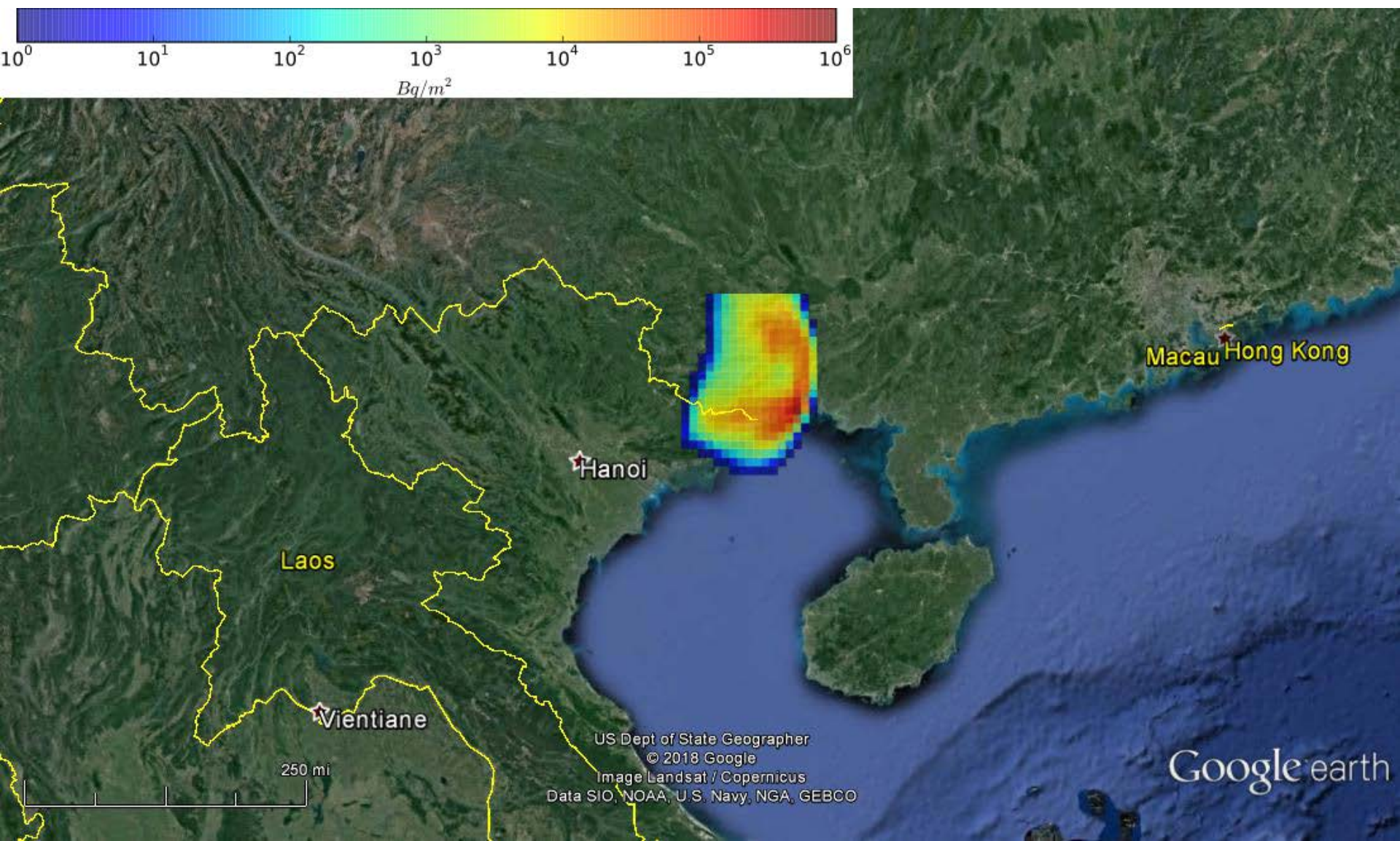
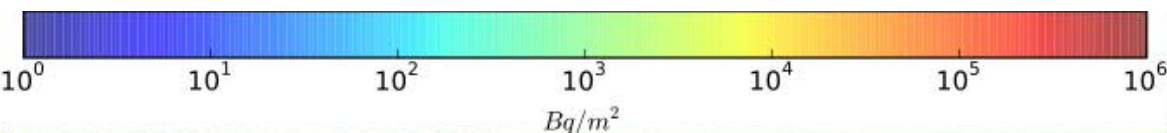
External gamma dose rate due to cloudshine (Sv/s) I-131, 1 day



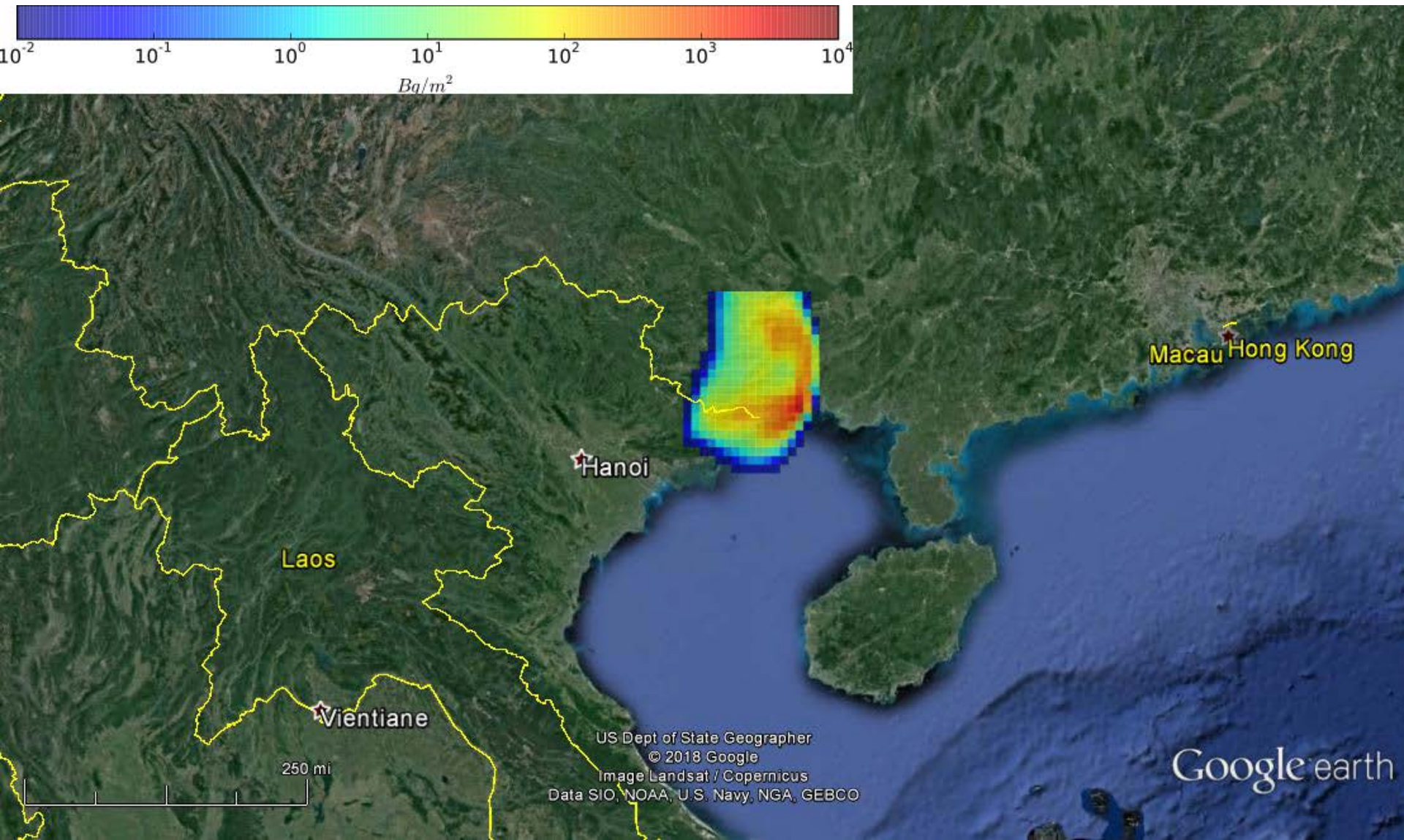
External gamma dose rate due to cloudshine (Sv/s) Cs-137, 1 day



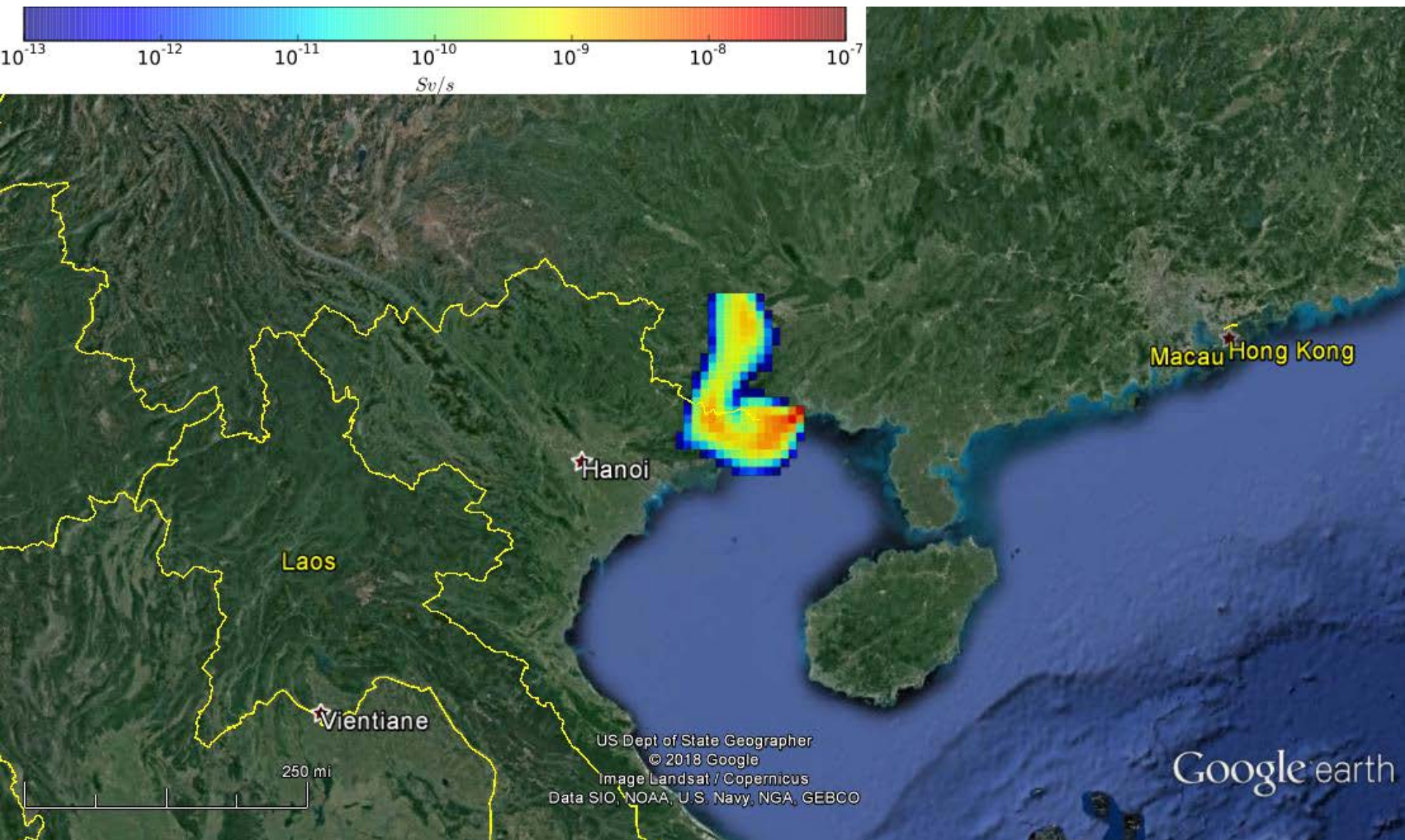
External gamma dose rate due to deposition (Sv/s), I-131, 1 day



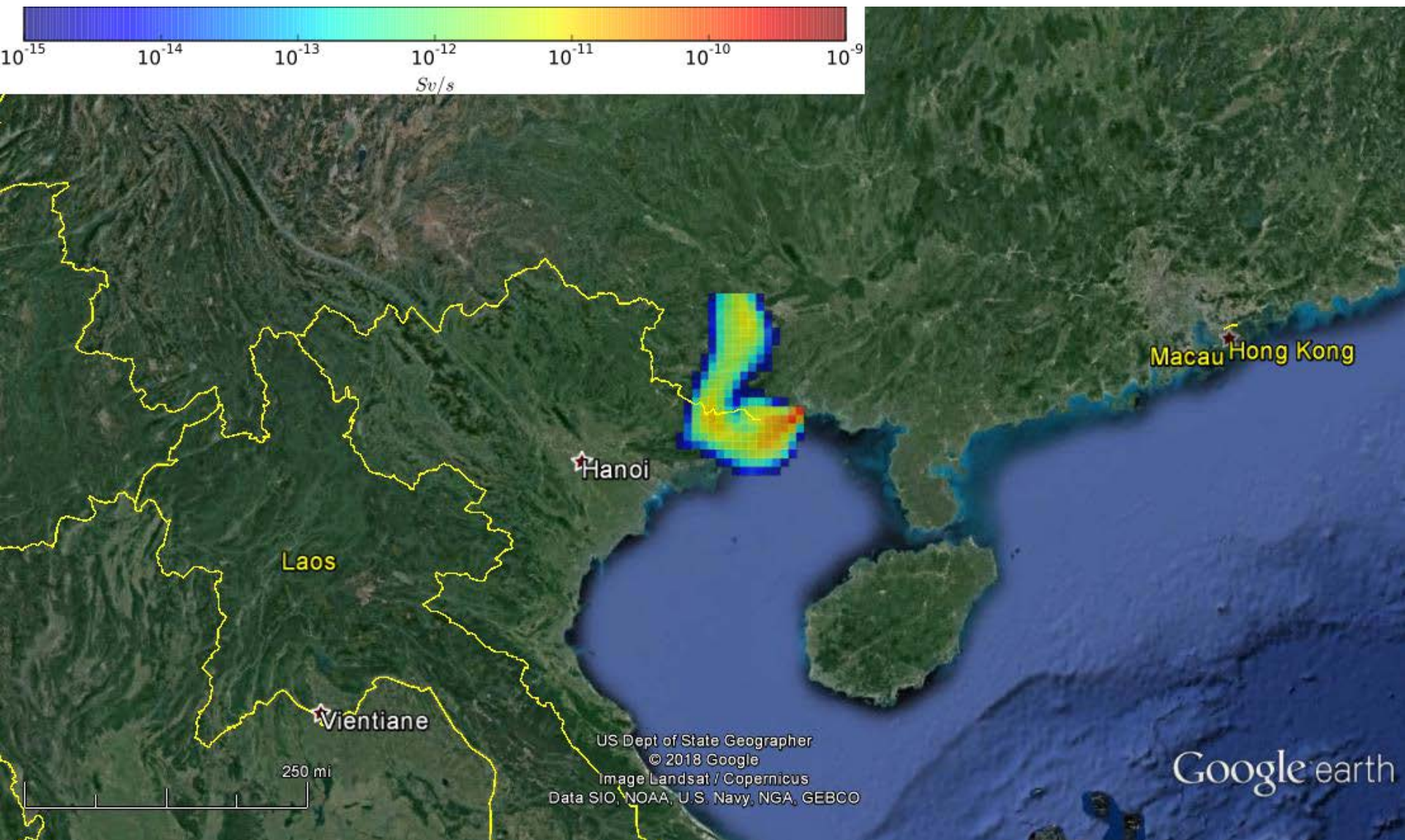
External gamma dose rate due to deposition (Sv/s) Cs-137, 1 day



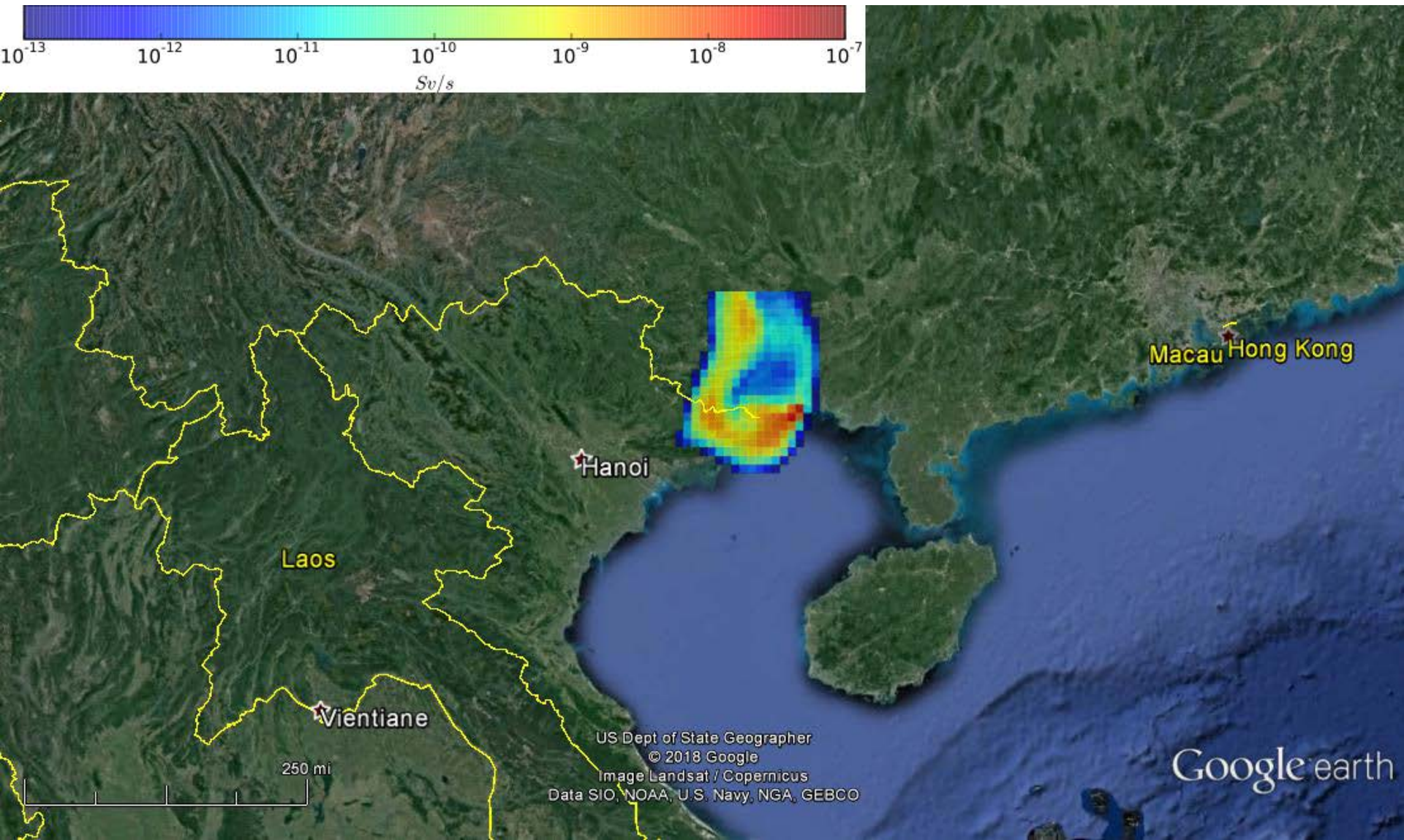
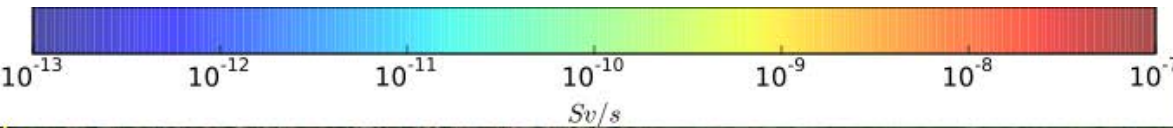
Internal irradiation due to inhalation (Sv/s) I-131, 1 day



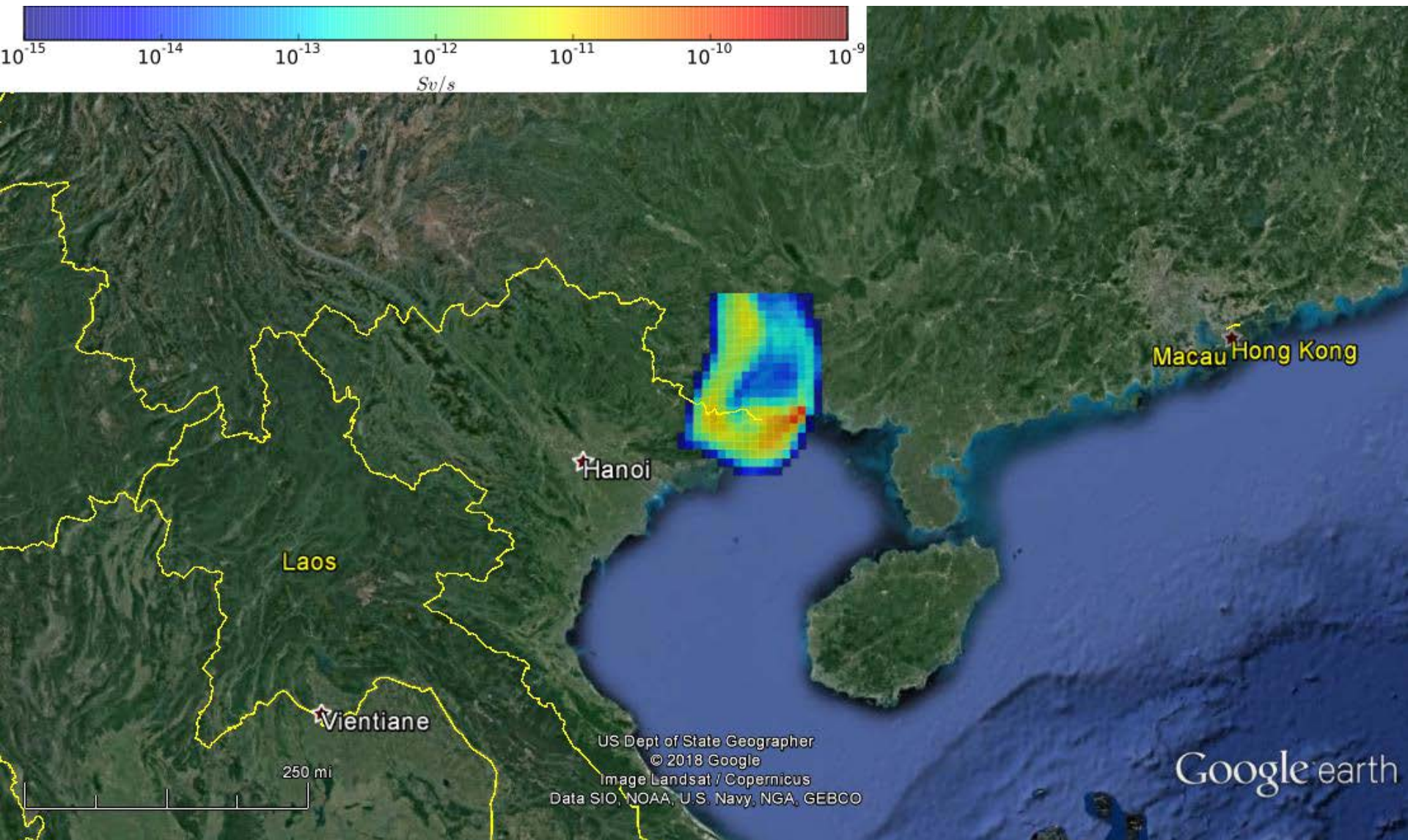
Internal irradiation due to inhalation (Sv/s) Cs-137, 1 day



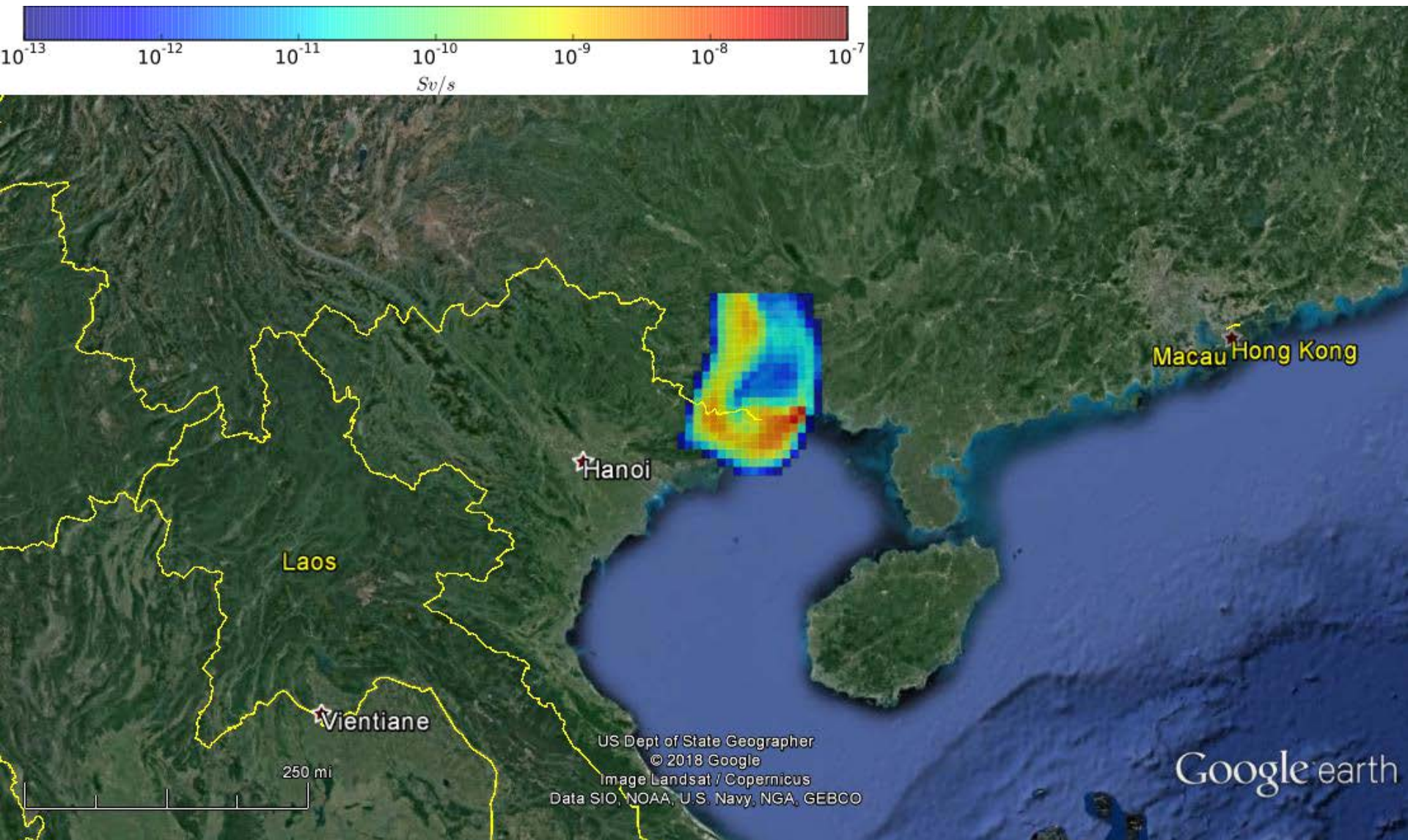
Dose rate from all pathways, I-131, 1 day



Dose rate from all pathways, Cs-137, 1 day



Dose rate from all pathways, all nuclides, 1 day



2017 Benchmark Problem Assessment: NPP1

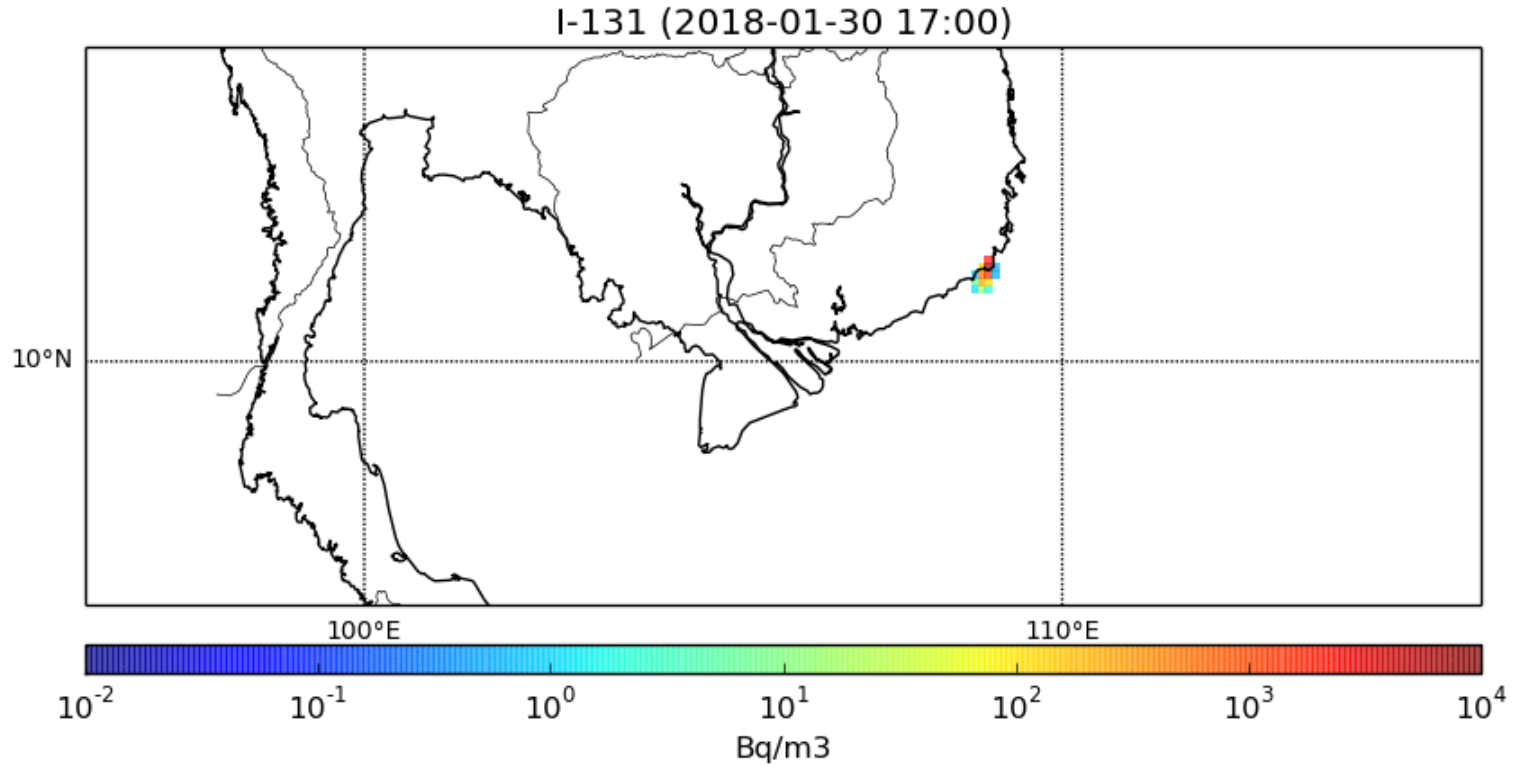
Release characteristics

- Location: 11°24'48"N, 108°58'29"E
- Release amount
- I-131: 1×10^{16} Bq (short-term consequences)
- Cs-137: 6×10^{13} Bq (long-term consequences)
- Release starting time: January 31, 2018 at 00:00 (UTC+8)
- Release period: 26 hours
- Release height: 10 meters
- Heat content: 500 kW
- Weather data specification
- Coverage: 6.5-32.0°N, 95.5-122.5°E
- Resolution: 0.5° x 0.5

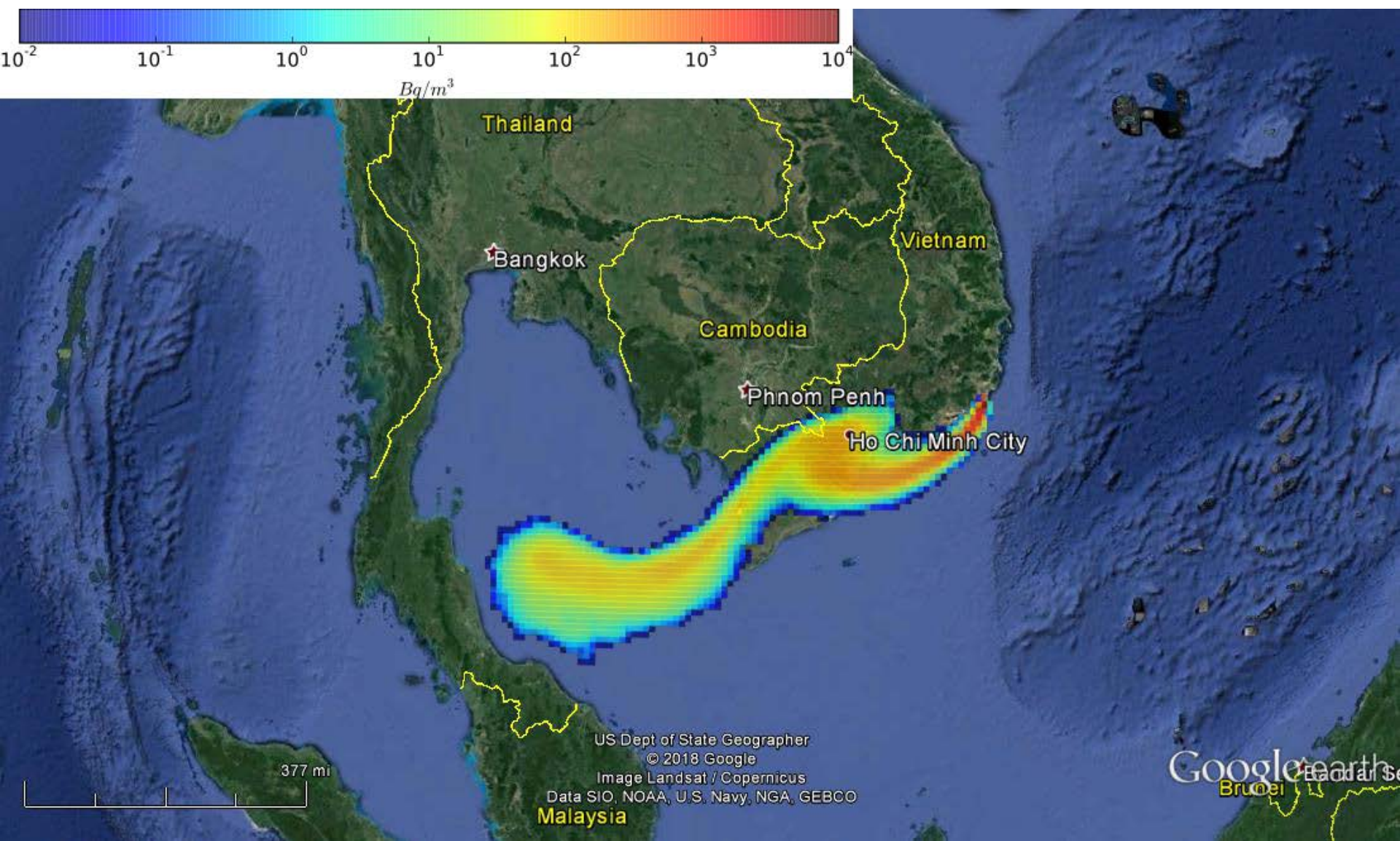
2017 Benchmark Problem Assessment: NPP1

- Results to be compared
- Distribution maps of the following values at 1 day from the release starting time
 - (Time-integrated) air concentration (Bq/m^3)
 - (Time-integrated) ground concentration (Bq/m^2)
 - exposure dose
 - external gamma dose rate due to cloudshine (Sv/s)
 - external gamma dose rate due to deposition (Sv/s)
 - internal irradiation due to inhalation (Sv/s)
 - dose rate from all pathways

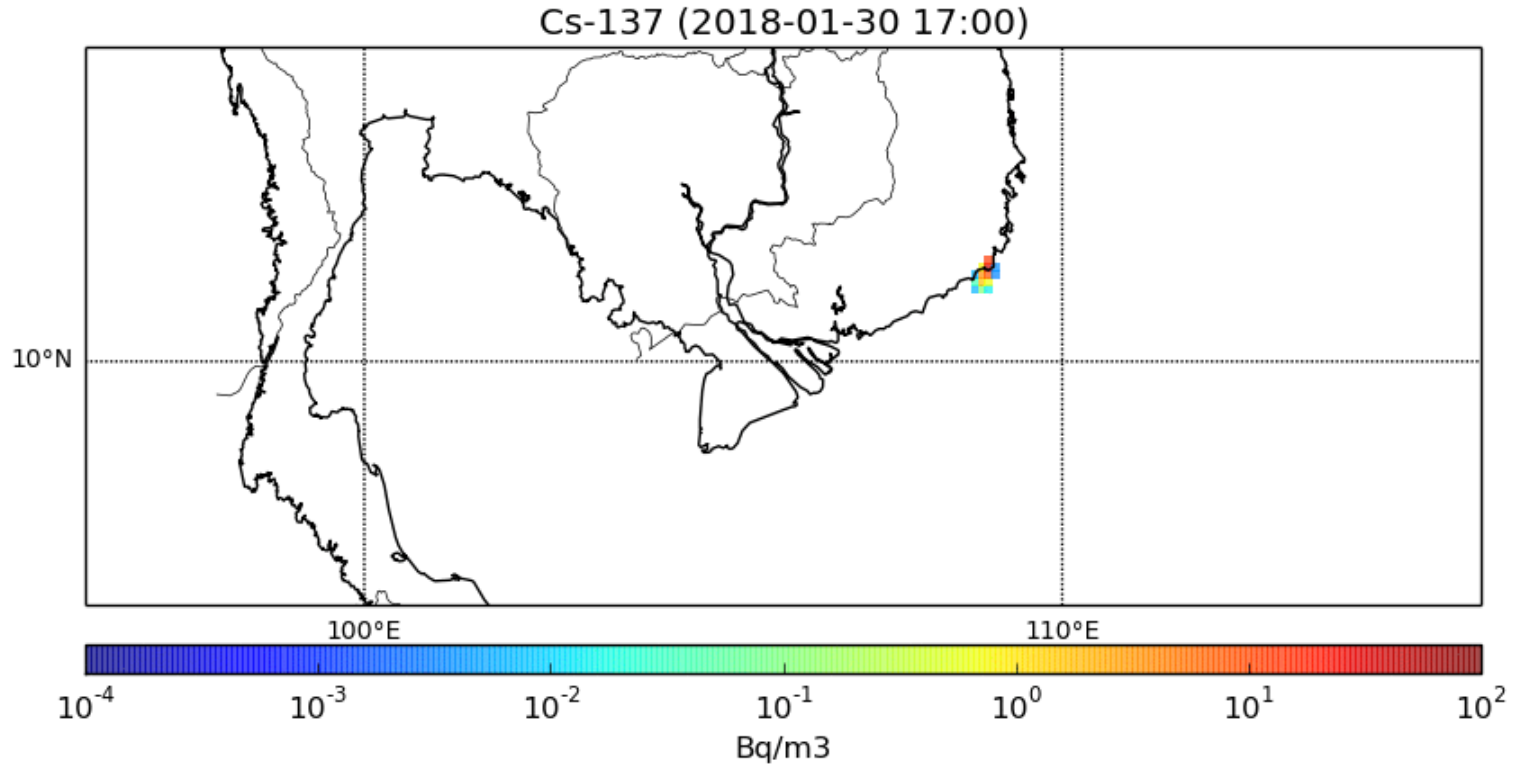
Results –Air Concentration (I-131)



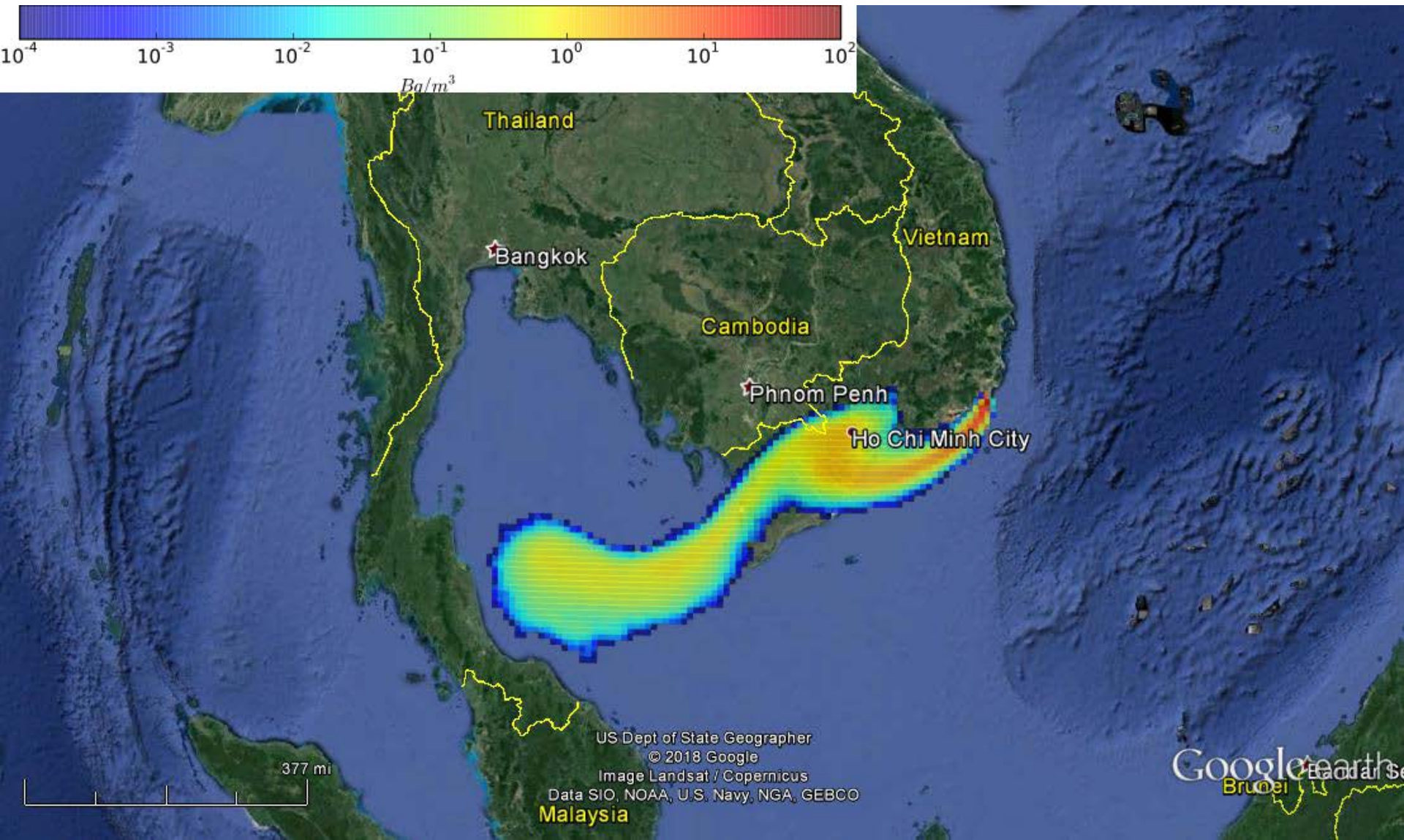
Results –Air Concentration (I-131; 1 day)



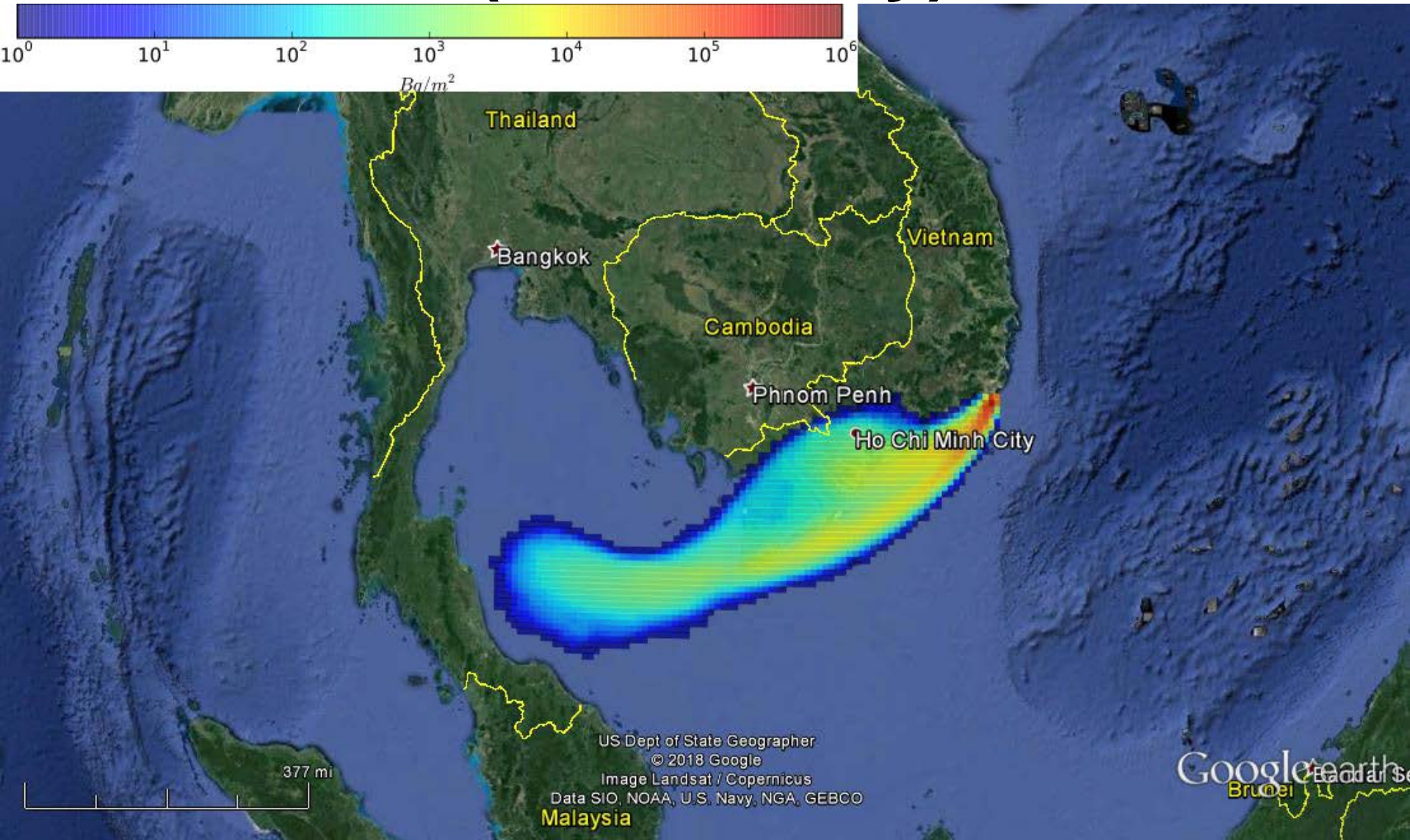
Results –Air Concentration (Cs-137)



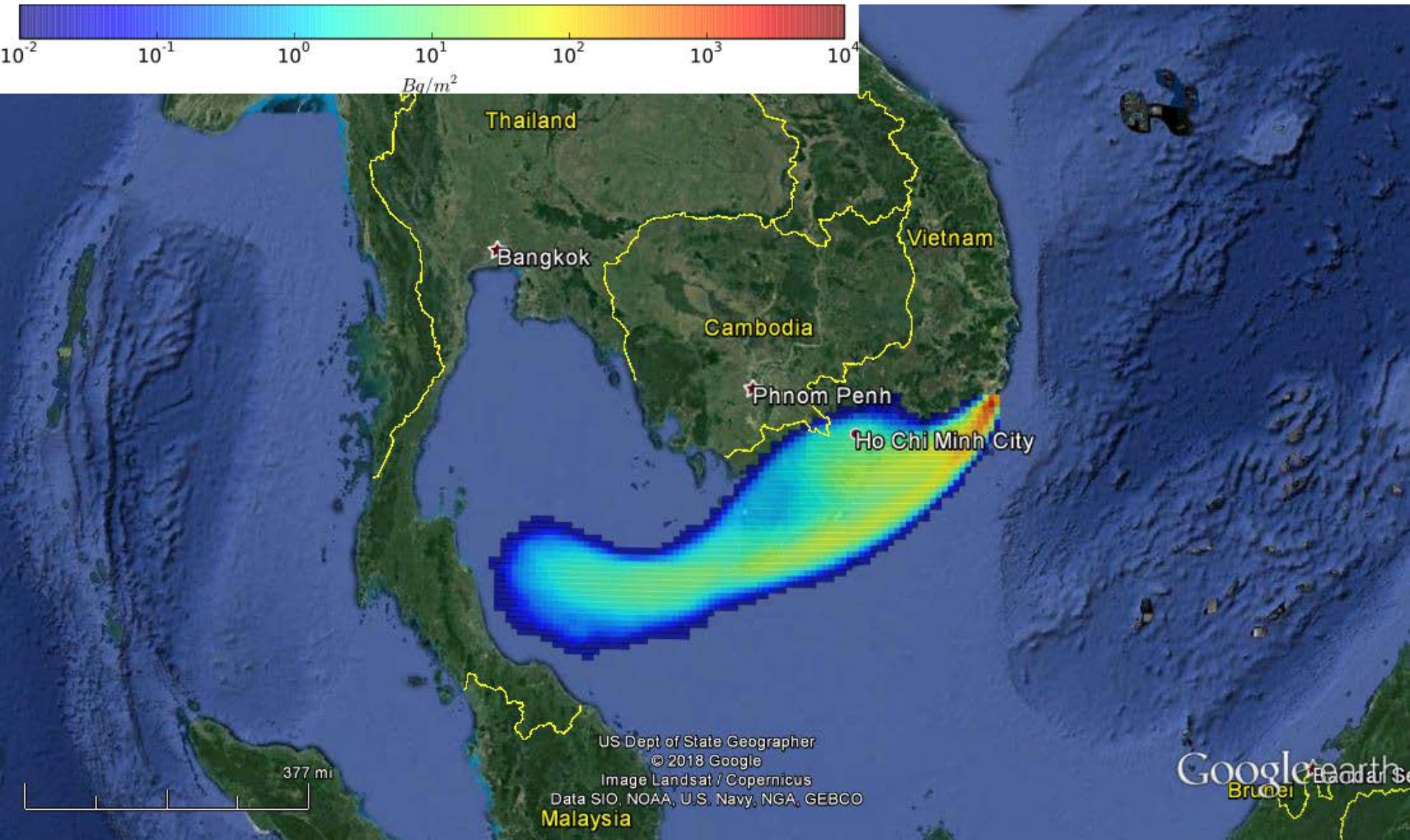
Results –Air Concentration (Cs-137; 1 day)



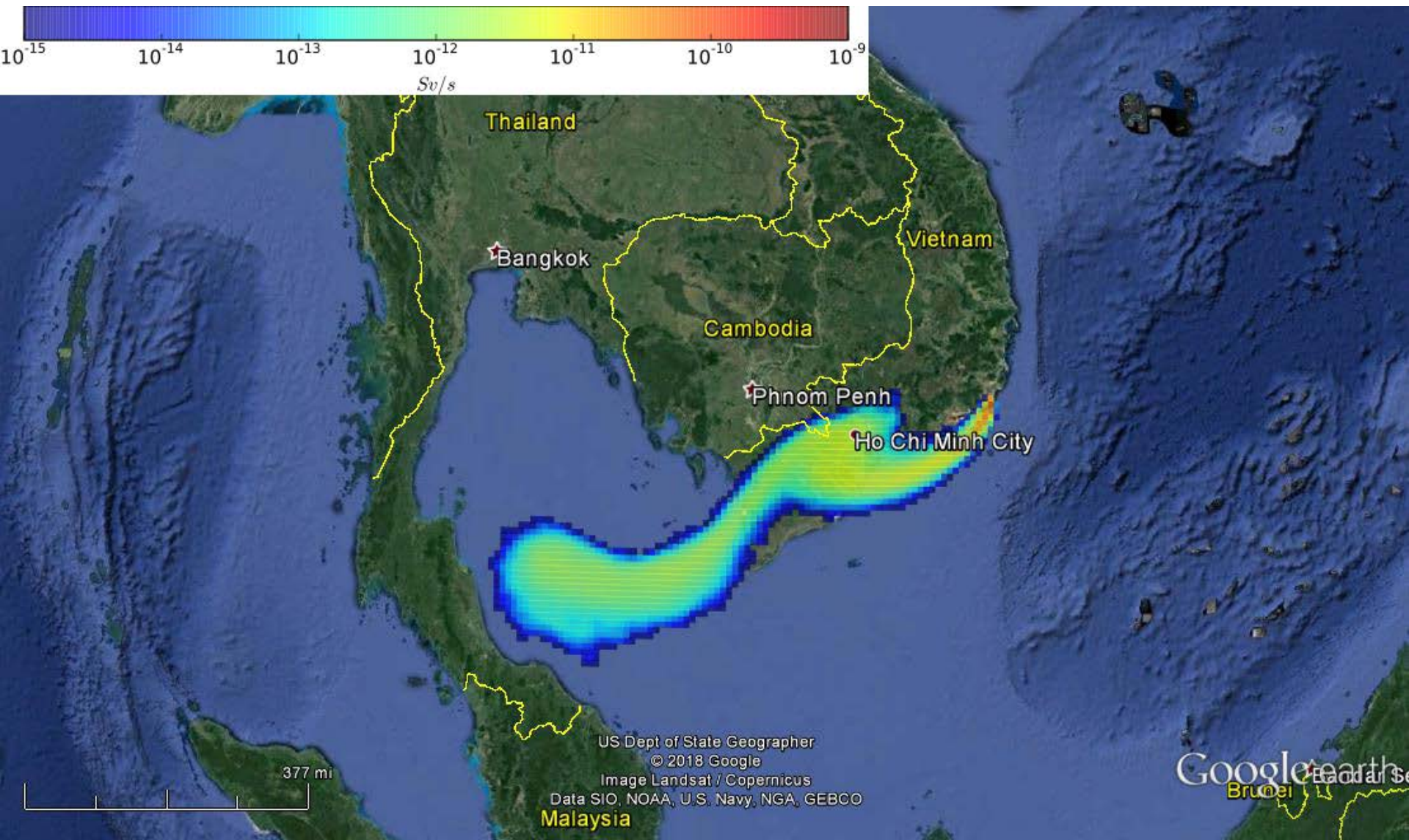
Results – Ground Concentration (I-131; 1 day)



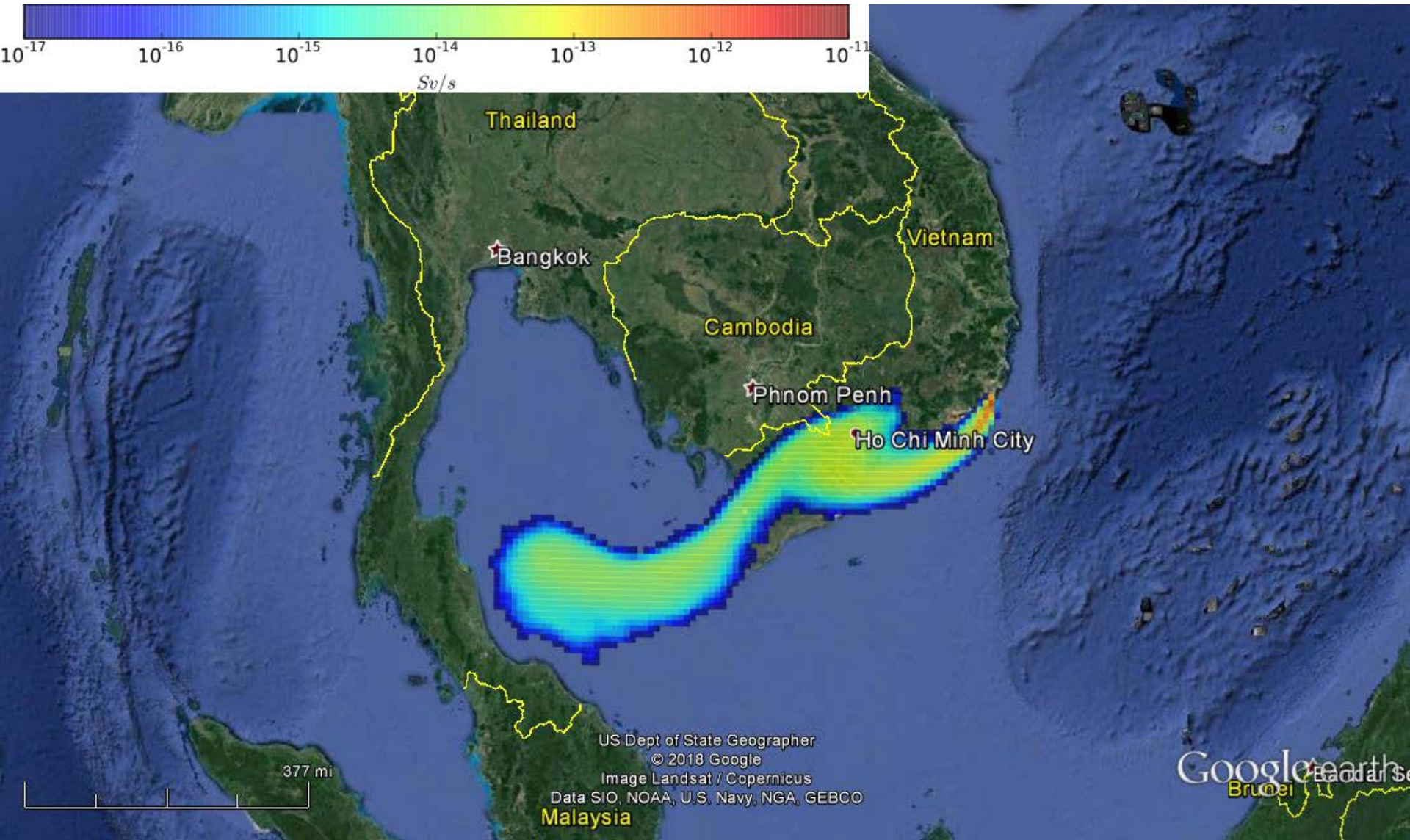
Results – Ground Concentration (Cs-137; 1 day)



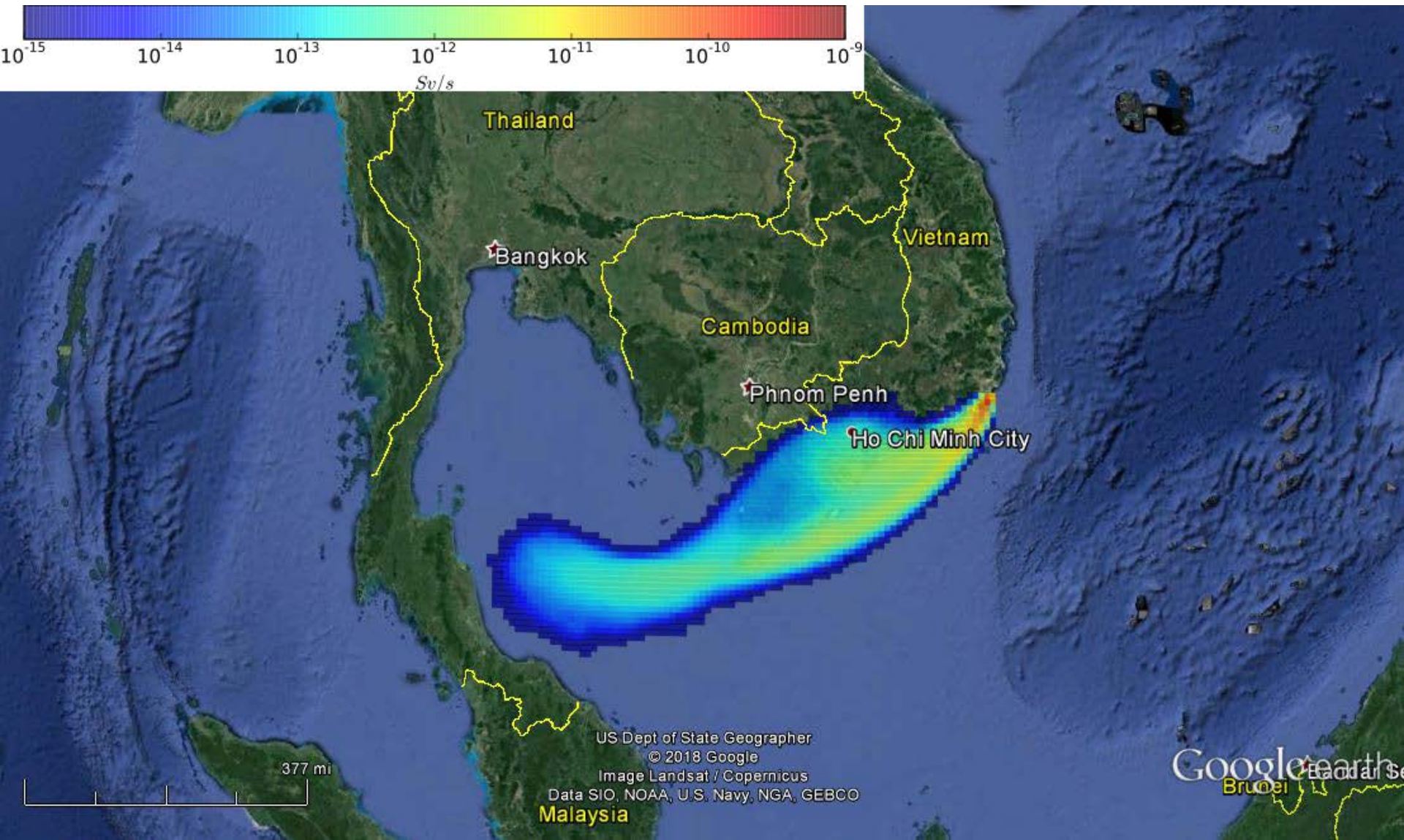
External gamma dose rate due to cloudshine (Sv/s) I-131, 1 day



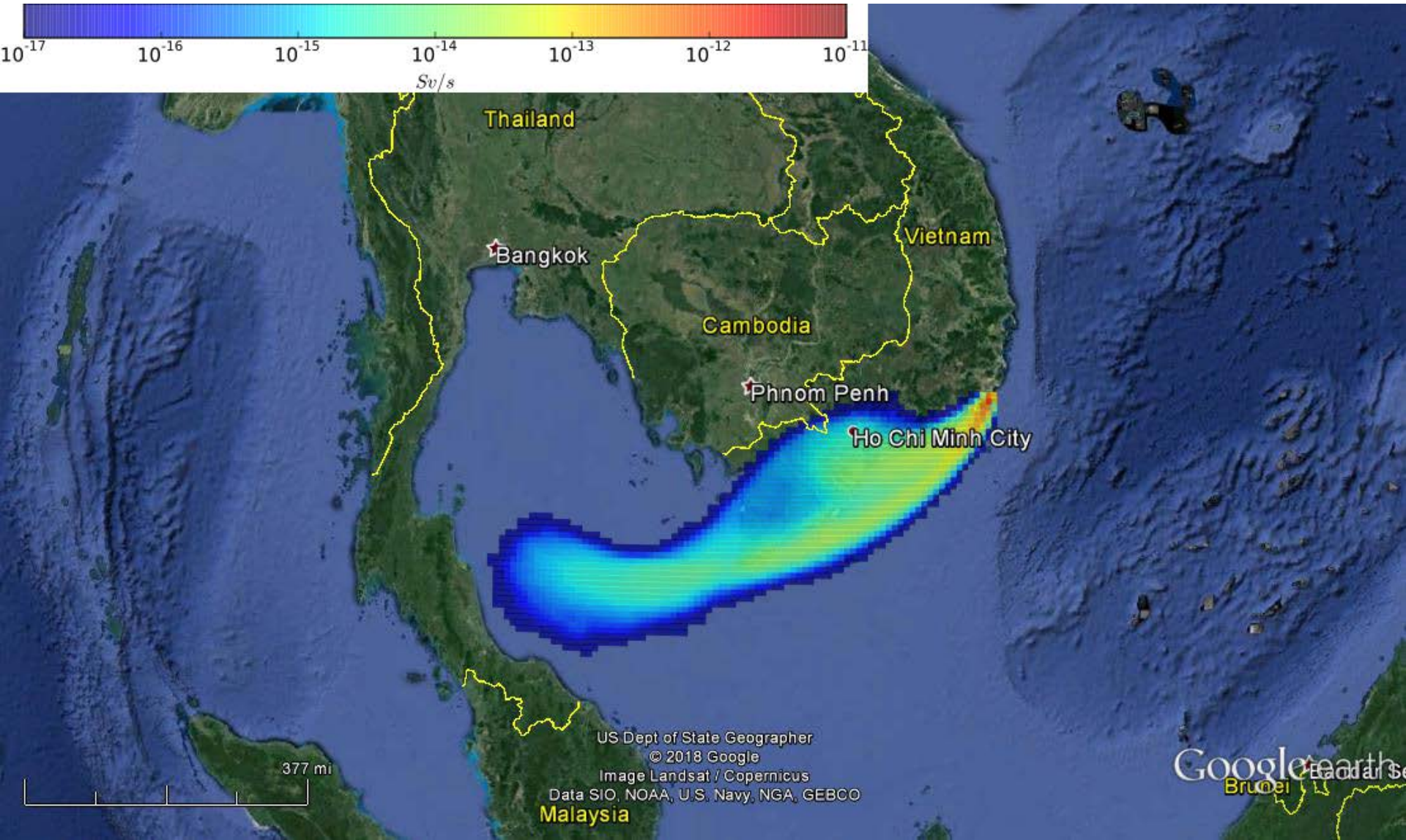
External gamma dose rate due to cloudshine (Sv/s) Cs-137, 1 day



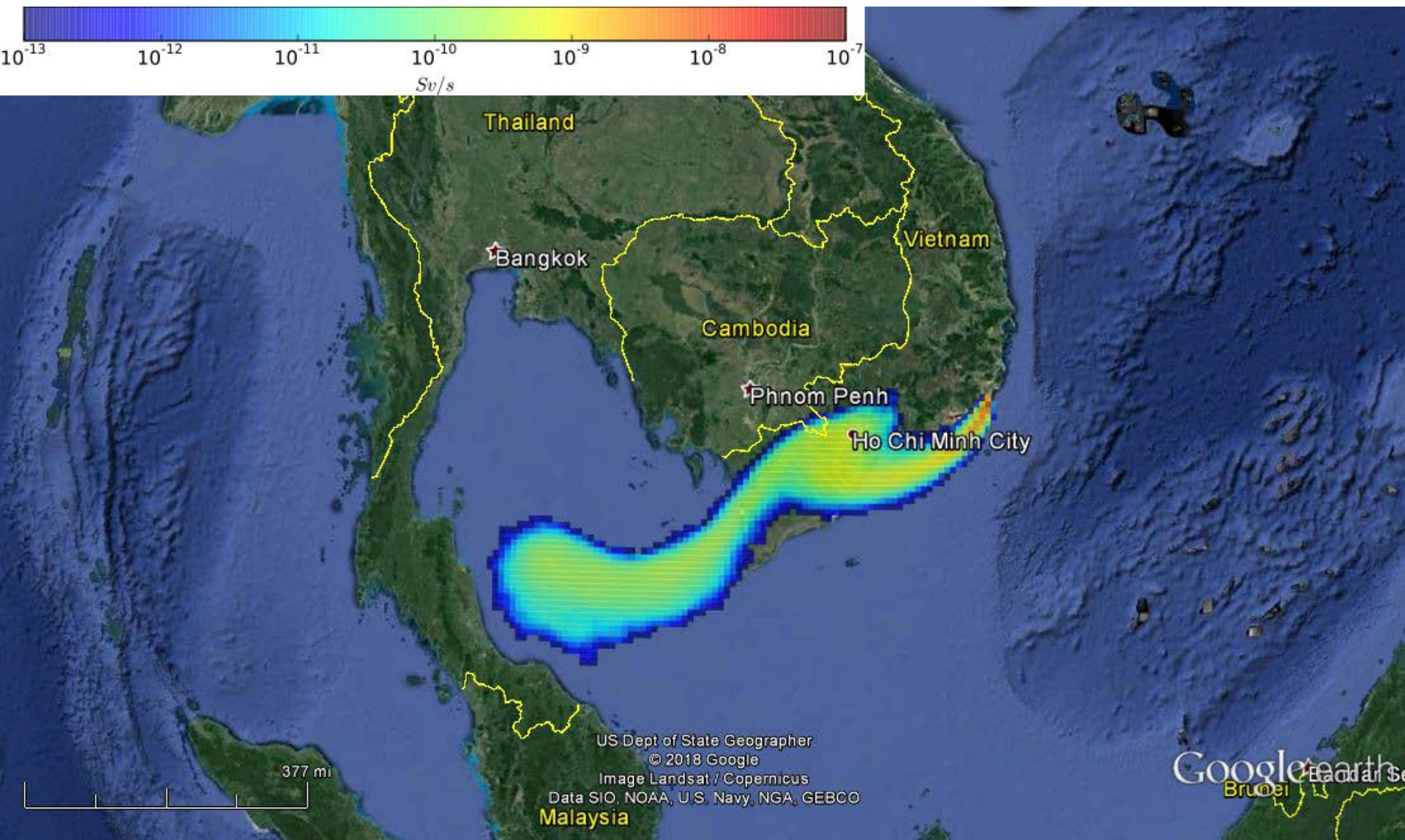
External gamma dose rate due to deposition (Sv/s), I-131, 1 day



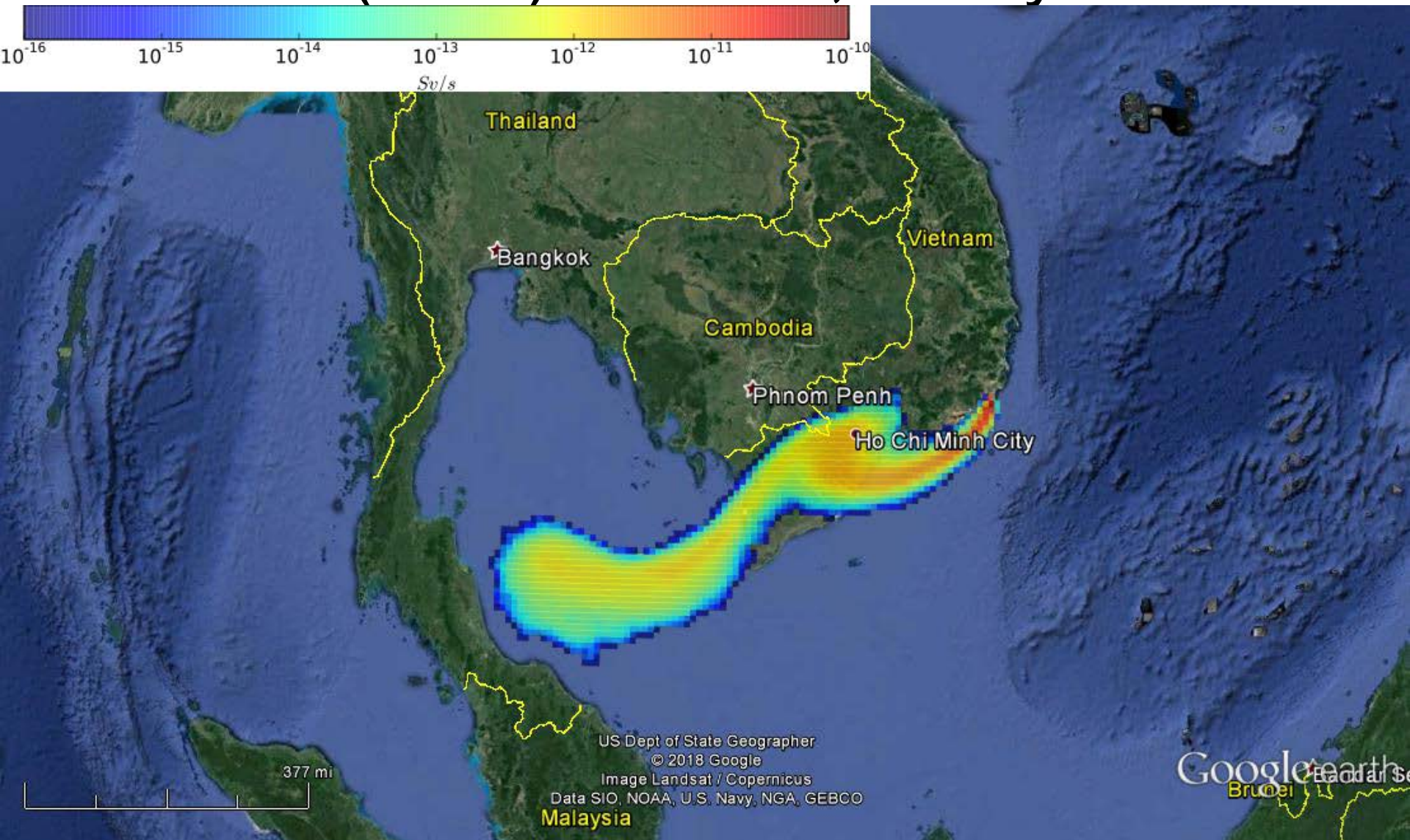
External gamma dose rate due to deposition (Sv/s) Cs-137, 1 day



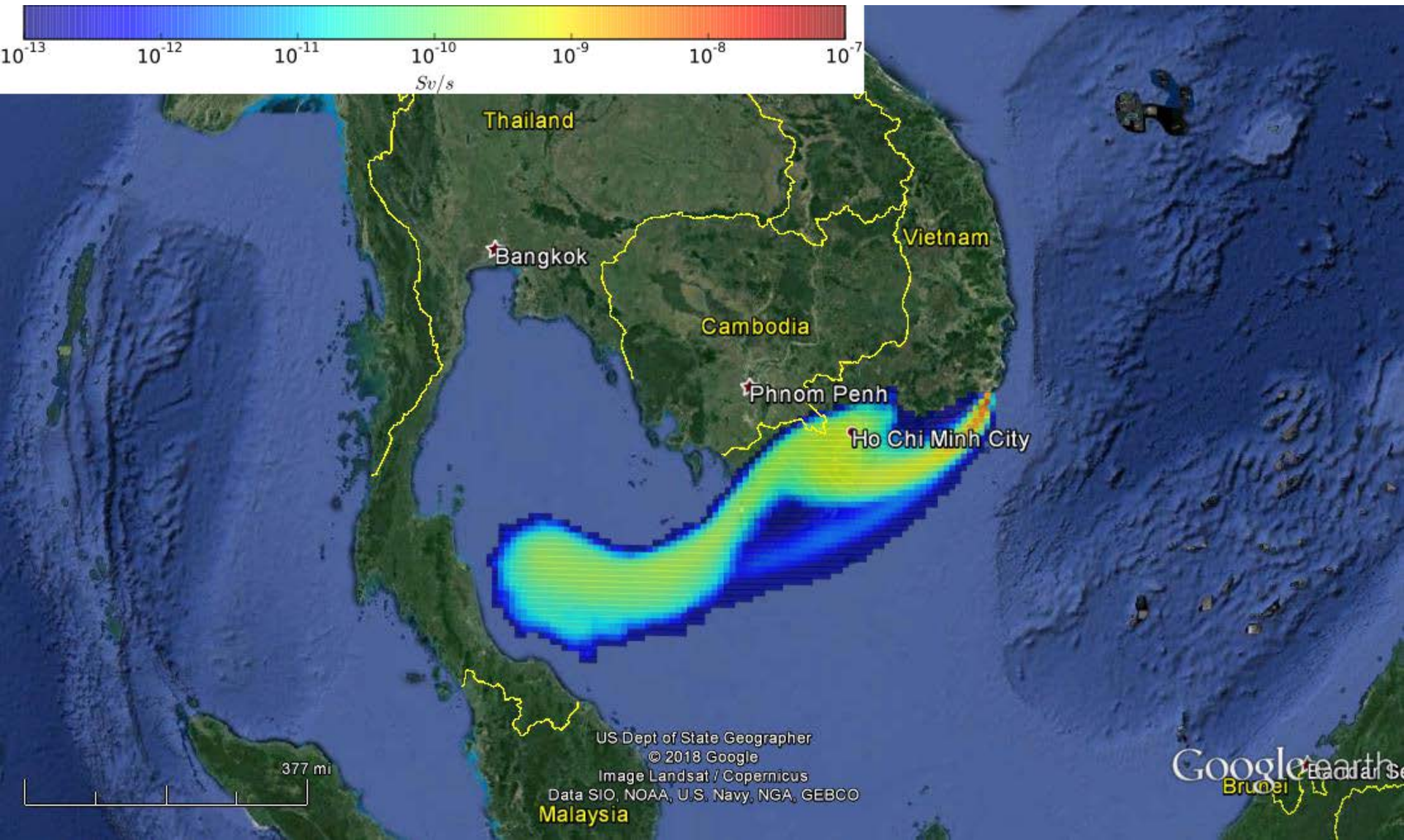
Internal irradiation due to inhalation (Sv/s) I-131, 1 day



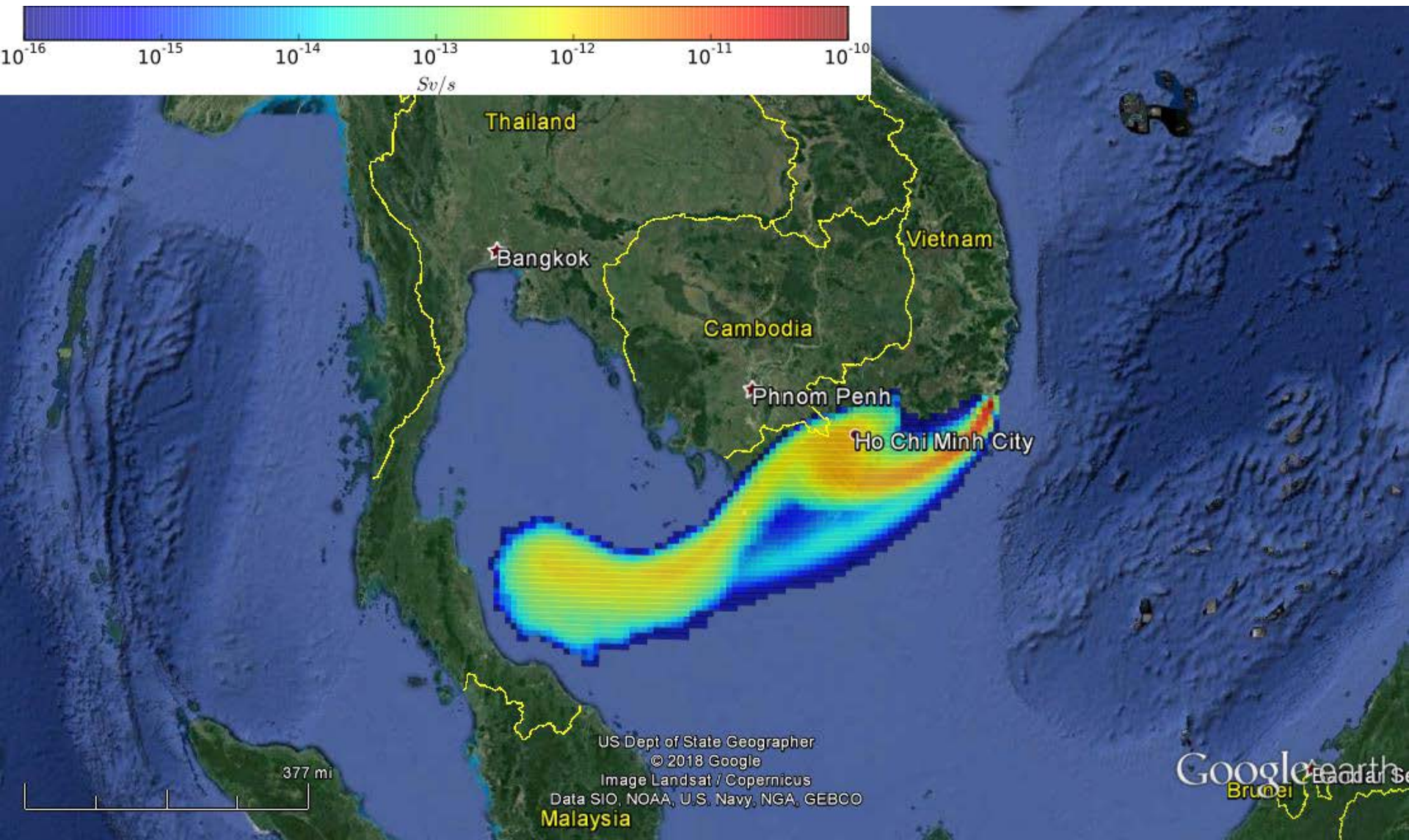
Internal irradiation due to inhalation (Sv/s) Cs-137, 1 day



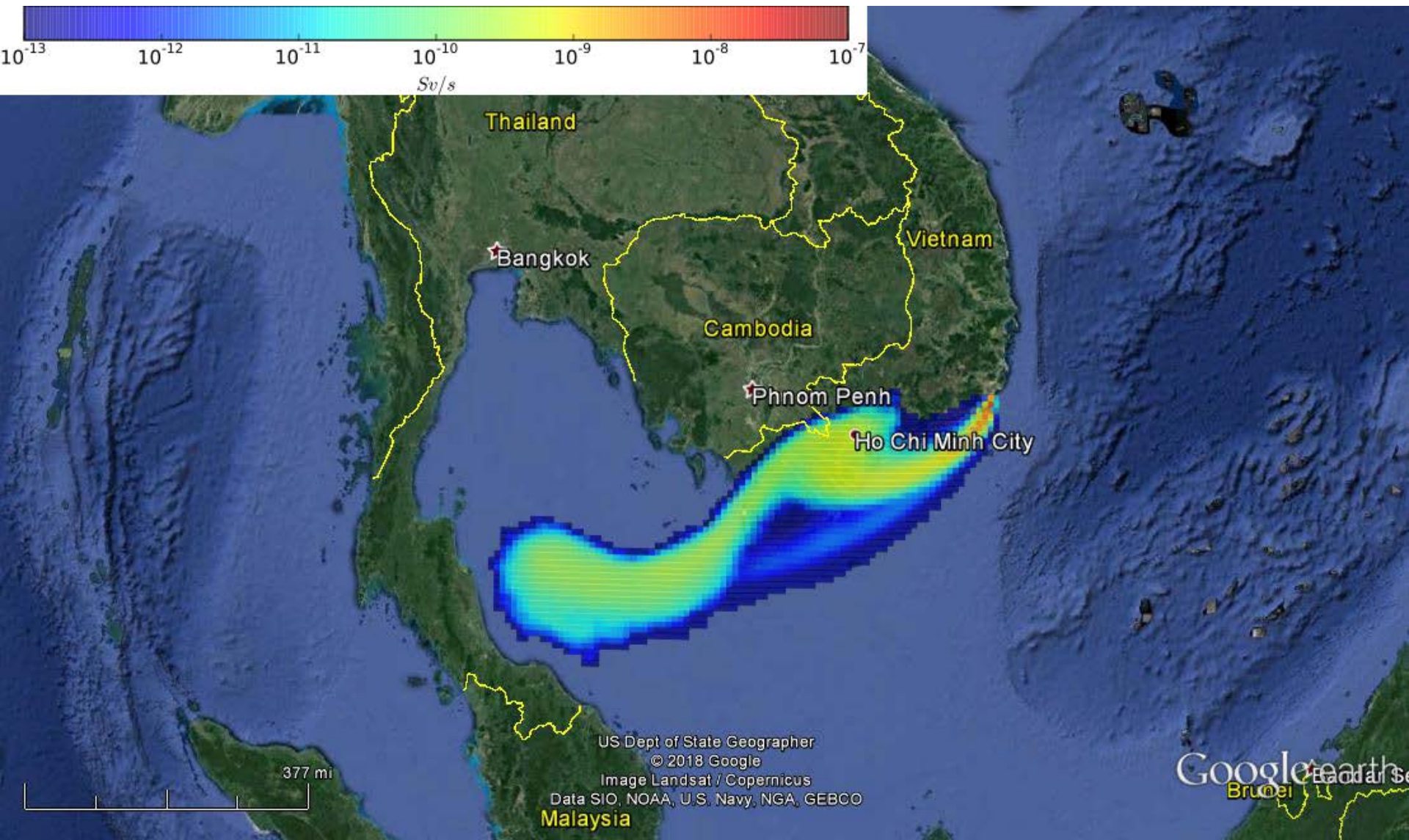
Dose rate from all pathways, I-131, 1 day



Dose rate from all pathways, Cs-137, 1 day



Dose rate from all pathways, all nuclides, 1 day



Thank you for your attention