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# **AE9/AP9/SPM Radiation Environment Model**

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## **Release Notes**

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Version 1.20.004

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The AE9/AP9/SPM model was developed by the Air Force Research Laboratory in partnership with MIT Lincoln Laboratory, Aerospace Corporation, Atmospheric and Environmental Research, Incorporated, Los Alamos National Laboratory and Boston College Institute for Scientific Research.

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The AE9/AP9/SPM model and related information can be obtained from AFRL's Virtual Distributed Laboratory (VDL) website: <https://www.vdl.afrl.af.mil/programs/ae9ap9>

V1.00.002 release: 05 September 2012

V1.03.001 release: 26 September 2012

V1.04.001 release: 20 March 2013

V1.04.002 release: 20 June 2013

V1.05.001 release: 06 September 2013

V1.20.001 release: 31 July 2014

V1.20.002 release: 13 March 2015

V1.20.003 release: 15 April 2015

V1.20.004 release: 28 September 2015

In a future release of AE9/AP9/SPM, the model will be renamed to be "International Radiation Environment Near Earth" (IRENE).

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## Release Notes

Version 1.20.004  
September 28, 2015

### Highlights

Please refer to the 'Ae9Ap9\_v1\_20\_001\_ReleaseNotes', 'Ae9Ap9\_v1\_20\_002\_ReleaseNotes' and 'Ae9Ap9\_v1\_20\_003\_ReleaseNotes' documents for a full description of the revisions and enhancements of the model since v1.05.001.

A problem with the IntegralPlasma utility program was corrected.

### Software Changes

IntegralPlasma utility program

- An unintended signaling of an error condition was corrected. This utility program, which is used by the GUI or can be run independently, adjusts the SPM outputs for integral fluxes when calculated in tandem with AE9/AP9 integral outputs. Previously, when more than five files of one species were processed at a time, the return value was misinterpreted as an error condition, causing the GUI program to also report an error.

### General

- The calculated model values contained in the 'expected output' files for the v1.20.003 release are identical to those for this v1.20.004 release, as they were unaffected by the IntegralPlasma program correction.

### Contact Information

Please send any questions, comments and/or bug reports to: [ae9ap9@vdl.afrl.af.mil](mailto:ae9ap9@vdl.afrl.af.mil)

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