Solar N appendix

Sun · N · downloadable appendix

N.json v1.10 · 0 visible products · 10 quarantined entries

NOT_YET_DEFENSIBLE

No adopted Solar nitrogen abundance is available from this feed.

Highlighted Products

No adopted highlighted product has been selected. No adopted Solar nitrogen abundance is available from this feed.

Error-bar Forest Plot

No publication-eligible abundance products. Quarantined entries are documented below without plotted values.

How to read this forest. Each row is one independent product, preserving its band, holding, engine, indicator and line set. Engines and indicator families are never averaged. Solid bars show the supplied statistical uncertainty; wireframes show the supplied systematic uncertainty. The statistical basis and any incomplete error budget remain attached to the row. Grades describe the supplied line-pool provenance, not engine quality; evaluated theoretical CNO oscillator strengths are not relabelled as laboratory evidence. Quarantined, failed and unconstrained fits have no abundance mark. Experimental products remain explicitly not adopted. Literature references provide context, never tuning targets.

Solar nitrogen context

The nitrogen strategy uses red-optical N I as the primary atomic route, with NH providing an independent molecular check and CN a carbon-dependent cross-check. An unresolved or unconstrained fit supplies no adopted Solar nitrogen abundance.

C/O indicator strategy · Methodology · Nitrogen strategy

Open provenance decisions

NIST's N I values ARE Tachiev (TP T7370). Adjudicating N I against this pull is one source seen twice, not independent confirmation.

Adjudication record · Indicator gf checks

Product visibility audit

Every feed entry is accounted for. Quarantined and archived entries retain their source disposition; their numeric fit outputs are available only in the labelled source download.

Withheld entries and source reasons (10)

quarantine · N · I · red-optical · iag_fts_solar_atlas · solar_iag · ALL · SET-AGSS21_ENGINE-A · SYNTH · ENGINE-A
RYA-1097 gated re-run precedence: this product does NOT pass the RYA-1092 eligibility gate, so it was published into quarantine and did not supersede anything. [NOT_YET_DEFENSIBLE] N I is outside the ratified real set {Fe I, Fe II, Al}. It is a pilot measurement, not a product.

quarantine · N · I · red-optical · iag_fts_solar_atlas · solar_iag · ALL · SET-AGSS21 · SYNTH · 1D-LTE
RYA-1097 gated re-run precedence: this product does NOT pass the RYA-1092 eligibility gate, so it was published into quarantine and did not supersede anything. [NOT_YET_DEFENSIBLE] N I is outside the ratified real set {Fe I, Fe II, Al}. It is a pilot measurement, not a product.

quarantine · N · I · red-optical · kpno_solar_atlas · solar_kpno_kurucz2005_corrected · ALL · SET-AGSS21_ENGINE-A · SYNTH · ENGINE-A
RYA-1097 gated re-run precedence: this product does NOT pass the RYA-1092 eligibility gate, so it was published into quarantine and did not supersede anything. [NOT_YET_DEFENSIBLE] N I is outside the ratified real set {Fe I, Fe II, Al}. It is a pilot measurement, not a product.

quarantine · N · I · red-optical · kpno_solar_atlas · solar_kpno_kurucz2005_corrected · ALL · SET-AGSS21 · SYNTH · 1D-LTE
RYA-1097 gated re-run precedence: this product does NOT pass the RYA-1092 eligibility gate, so it was published into quarantine and did not supersede anything. [NOT_YET_DEFENSIBLE] N I is outside the ratified real set {Fe I, Fe II, Al}. It is a pilot measurement, not a product.

quarantine · N · I · red-optical · kpno_solar_atlas · solar_kpno_molecfit_corrected · ALL · SET-AGSS21_ENGINE-A · SYNTH · ENGINE-A
RYA-1097 gated re-run precedence: this product does NOT pass the RYA-1092 eligibility gate, so it was published into quarantine and did not supersede anything. [NOT_YET_DEFENSIBLE] N I is outside the ratified real set {Fe I, Fe II, Al}. It is a pilot measurement, not a product.

quarantine · N · I · red-optical · kpno_solar_atlas · solar_kpno_molecfit_corrected · ALL · SET-AGSS21 · SYNTH · 1D-LTE
RYA-1097 gated re-run precedence: this product does NOT pass the RYA-1092 eligibility gate, so it was published into quarantine and did not supersede anything. [NOT_YET_DEFENSIBLE] N I is outside the ratified real set {Fe I, Fe II, Al}. It is a pilot measurement, not a product.

quarantine · N · I · VIS · harps · solar_harps_molecfit_corrected · ALL · MOL-CN_red · SYNTH · 1D-LTE
RYA-1097 gated re-run precedence: this product does NOT pass the RYA-1092 eligibility gate, so it was published into quarantine and did not supersede anything. [STAT_BASIS_MISMATCH] sigma_stat here is a 'curvature_sigma' (SYNTH route, band_products.py:506) while the rest of the feed publishes a 'standard_error' (error_budget.py:609). The feed carries no stat_basis field, so `A +/- sigma_stat` renders as comparable when it is not -- this product's bar reads ~sqrt(n) times worse than it is. [NOT_YET_DEFENSIBLE] N I is outside the ratified real set {Fe I, Fe II, Al}. It is a pilot measurement, not a product.

quarantine · N · I · red-optical · iag_fts_solar_atlas · solar_iag · ALL · SET-AGSS21 · SYNTH · ENGINE-A
RYA-1097 gated re-run precedence: this product does NOT pass the RYA-1092 eligibility gate, so it was published into quarantine and did not supersede anything. [NOT_YET_DEFENSIBLE] N I is outside the ratified real set {Fe I, Fe II, Al}. It is a pilot measurement, not a product.

quarantine · N · I · red-optical · kpno_solar_atlas · solar_kpno_kurucz2005_corrected · ALL · SET-AGSS21 · SYNTH · ENGINE-A
RYA-1097 gated re-run precedence: this product does NOT pass the RYA-1092 eligibility gate, so it was published into quarantine and did not supersede anything. [NOT_YET_DEFENSIBLE] N I is outside the ratified real set {Fe I, Fe II, Al}. It is a pilot measurement, not a product.

quarantine · N · I · red-optical · kpno_solar_atlas · solar_kpno_molecfit_corrected · ALL · SET-AGSS21 · SYNTH · ENGINE-A
RYA-1097 gated re-run precedence: this product does NOT pass the RYA-1092 eligibility gate, so it was published into quarantine and did not supersede anything. [NOT_YET_DEFENSIBLE] N I is outside the ratified real set {Fe I, Fe II, Al}. It is a pilot measurement, not a product.

Download the evidence

Download PDF — Solar N appendix

Source feed — includes quarantined fit outputs, not adopted abundances

Complete product visibility audit

Shared website/PDF report

Reproducibility manifest

Complete references and product-to-source bindings

Reproducibility

Generated from the pinned CNO campaign snapshot. Source commit
a1ec12a9cc09472037e2af3b1242db2ce5b37c6b
Feed N.json v1.10 · updated 2026-09-13T04:26:40Z
Generated 2026-09-12T23:07:15-06:00 (source commit timestamp)
Feed SHA-256 c4f33a350616d4309c2b8a6ea71060f062ae75ba518df980262d3b7b1b589ffb
Generator scripts/generate_cno_publication.py v1.0.0

Pinned scientific source

References / Data & Model Sources

Sources are separated by their role. Registered grid lineage and quarantined diagnostics do not imply an adopted abundance or an applied correction.

See the source notes for the distinction between reference lineage and the treatment actually recorded in each feed entry.

Science and provenance source notes

Solar abundance and indicator analyses. Solar N atomic/molecular indicator lineage and atmospheric sensitivity; comparison literature, not an adopted Codex abundance. Sources: [1], [2].

Atomic data and gf authorities. The recorded N I/II pedigree is the partial NIST MCHF update described by Wiese & Fuhr; evaluated theory is not primary laboratory evidence. Sources: [3], [4].

Atomic data and gf authorities. NIST's N I values ARE Tachiev (TP T7370). Adjudicating N I against this pull is one source seen twice, not independent confirmation. Sources: [3], [5].

Model and grid sources. The N I registry uses the Amarsi GALAH/PySME 1D-NLTE departure grid. The solar 3D-NLTE atomic analysis is a separate source, not a full-3D correction applied by this feed. Sources: [6], [7], [8].

Atomic data and gf authorities. Atomic N I entry; source-family pedigree only, not a substitute for a per-transition gf join. Sources: [3], [4], [5].

Model and grid sources. Feed label: Synth · 1D-NLTE · Bergemann. Registered source: Amarsi/PySME N I 1D-NLTE. The generic Bergemann label is retained as supplied and is not used as a bibliographic attribution. Sources: [6], [7], [8].

Model and grid sources. Feed treatment: 1D-LTE; no NLTE/3D correction is claimed for this entry. Turbospectrum is the synthesis implementation. Sources: [9].

Molecular line data and delivery. CN line-data delivery: CN red A-X: Brooke et al. 2014 / Sneden et al. 2014 (isotopologues). Masseron compilation, VALD-based, distributed with iSpec/Turbospectrum (Gerber et al. 2023, A&A 669, A43; uploaded 2022 to keeper.mpdl.mpg.de, split per wavelength region) — see molecules-dir README.md Sources: [2], [9], [10], [11].

Product-to-source index

N-quarantine-92f4078d16e7 · quarantine · red-optical · solar_iag · SET-AGSS21_ENGINE-A · ENGINE-A · not supplied · [1], [3], [4], [5], [6], [7], [8]

N-quarantine-b6f3d1679545 · quarantine · red-optical · solar_iag · SET-AGSS21 · 1D-LTE · not supplied · [1], [3], [4], [5], [9]

N-quarantine-e3c293991e58 · quarantine · red-optical · solar_kpno_kurucz2005_corrected · SET-AGSS21_ENGINE-A · ENGINE-A · not supplied · [1], [3], [4], [5], [6], [7], [8]

N-quarantine-08261af2d8eb · quarantine · red-optical · solar_kpno_kurucz2005_corrected · SET-AGSS21 · 1D-LTE · not supplied · [1], [3], [4], [5], [9]

N-quarantine-e61a07d3c5f5 · quarantine · red-optical · solar_kpno_molecfit_corrected · SET-AGSS21_ENGINE-A · ENGINE-A · not supplied · [1], [3], [4], [5], [6], [7], [8]

N-quarantine-dd0e12b67a86 · quarantine · red-optical · solar_kpno_molecfit_corrected · SET-AGSS21 · 1D-LTE · not supplied · [1], [3], [4], [5], [9]

N-quarantine-8cbfc9992ddc · quarantine · VIS · solar_harps_molecfit_corrected · MOL-CN_red · 1D-LTE · not supplied · [1], [2], [9], [10], [11]

N-quarantine-8766bede3cad · quarantine · red-optical · solar_iag · SET-AGSS21 · ENGINE-A · not supplied · [1], [3], [4], [5], [6], [7], [8]

N-quarantine-659e8305561b · quarantine · red-optical · solar_kpno_kurucz2005_corrected · SET-AGSS21 · ENGINE-A · not supplied · [1], [3], [4], [5], [6], [7], [8]

N-quarantine-8c7f96d180bf · quarantine · red-optical · solar_kpno_molecfit_corrected · SET-AGSS21 · ENGINE-A · not supplied · [1], [3], [4], [5], [6], [7], [8]

Complete applicable bibliography

Solar abundance and indicator analyses

[1] — Asplund, M.; Amarsi, A. M.; Grevesse, N. (2021). The chemical make-up of the Sun: A 2020 vision. A&A 653, A141 DOI: 10.1051/0004-6361/202140445. source record

[2] — Amarsi et al. 2021, A&A 656 A113 DOI: 10.1051/0004-6361/202141384. source record

Atomic data and gf authorities

[3] — Kramida, A.; Ralchenko, Yu.; Reader, J.; NIST ASD Team (2024). NIST Atomic Spectra Database (version 5.11/5.12). National Institute of Standards and Technology, Gaithersburg, MD DOI: 10.18434/T4W30F. source record

[4] — Wiese, W. L.; Fuhr, J. R. (2006). New Critical Compilations of Atomic Transition Probabilities for Neutral and Singly Ionized Carbon, Nitrogen, and Iron. Proceedings of the NASA Laboratory Astrophysics Workshop (14-16 February 2006, UNLV, Las Vegas) source record

[5] — Tachiev & Froese Fischer 2002, A&A 385, 716 DOI: 10.1051/0004-6361:20011816. source record

Model and grid sources

[6] — Amarsi et al. 2020, A&A 642 A62 DOI: 10.1051/0004-6361/202038650. source record

[7] — Amarsi, Grevesse, Grumer, Asplund, Barklem & Collet 2020, A&A 636, A120 DOI: 10.1051/0004-6361/202037890. source record

[8] — Amarsi 'Grid/NLTE' Zenodo, version 3 (the original 13-element 2020 release) DOI: 10.5281/zenodo.3982506. source record

[9] — Gerber, J. M.; Magg, E.; Plez, B.; Bergemann, M.; Heiter, U.; Olander, T.; Hoppe, R. (2023). Non-LTE radiative transfer with Turbospectrum. A&A 669, A43 DOI: 10.1051/0004-6361/202243673. source record

Molecular line data and delivery

[10] — Brooke et al. 2014, ApJS 210, 23 DOI: 10.1088/0067-0049/210/2/23. source record

[11] — Sneden, C.; Lucatello, S.; Ram, R. S.; Brooke, J. S. A.; Bernath, P. (2014). Line Lists for the Red and Violet Systems of CN, 13C14N, and 12C15N, and Application to Astronomical Spectra. ApJS 214, 26. DOI: 10.1088/0067-0049/214/2/26. source record