Supplemental Information for:

Introducing AfroGrid, A unified framework for environmental conflict research in Africa

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Conflict indicators

GED

1. \textit{ged\_state} – all state-conflict incidents recorded in a given cell month based on information from the GED dataset.

2. \textit{ged\_nonstate} – all non-state-conflict incidents recorded in a given cell month based on information from the GED dataset.

3. \textit{ged\_viol\_tot} – all one-sided violence incidents recorded in a given cell month based on information from the GED dataset.

4. \textit{ged\_viol\_state} – all one-sided violence incidents perpetrated by a state actor (i.e., an actor recorded as “Government” in the \textit{side\_a} column of the GED) recorded in a given cell month based on information from the GED dataset.

5. \textit{ged\_viol\_nonstate} – all one-sided violence incidents perpetrated by a state actor (i.e., an actor NOT recorded as “Government” in the \textit{side\_a} column of the GED) recorded in a given cell month based on information from the GED dataset.

6. \textit{ged\_state\_fatal\_best} – total best fatality estimates for all state conflict incidents recorded in a given cell month based on information from the GED dataset.

7. \textit{ged\_state\_fatal\_high} – total highest fatality estimates for all state conflict incidents recorded in a given cell month based on information from the GED dataset.

8. \textit{ged\_state\_fatal\_low} – total lowest fatality estimates for all state conflict incidents recorded in a given cell month based on information from the GED dataset.

9. \textit{ged\_state\_fatal\_sidea} – total fatality estimates for initiating actor from all state conflict incidents recorded in a given cell month based on information from the GED dataset.

10. \textit{ged\_state\_fatal\_sideb} – total fatality estimates for target actor from all state conflict incidents recorded in a given cell month based on information from the GED dataset.

11. \textit{ged\_nonstate\_fatal\_best} – total best fatality estimates for all non-state conflict incidents recorded in a given cell month based on information from the GED dataset.

12. \textit{ged\_nonstate\_fatal\_high} – total highest fatality estimates for all non-state conflict incidents recorded in a given cell month based on information from the GED dataset.

13. \textit{ged\_nonstate\_fatal\_low} – total lowest fatality estimates for all non-state conflict incidents recorded in a given cell month based on information from the GED dataset.
14. *ged_nonstate_fatal_sidea* – total fatality estimates for initiating actor from all non-state conflict incidents recorded in a given cell month based on information from the GED dataset.

15. *ged_nonstate_fatal_sideb* – total fatality estimates for target actor from all non-state conflict incidents recorded in a given cell month based on information from the GED dataset.

16. *ged_viol_fatal_tot_best* – total best fatality estimates for all one-sided violence incidents recorded in a given cell month based on information from the GED dataset.

17. *ged_viol_fatal_tot_high* – total highest fatality estimates for all one-sided violence incidents recorded in a given cell month based on information from the GED dataset.

18. *ged_viol_fatal_tot_low* – total lowest fatality estimates for all one-sided violence incidents recorded in a given cell month based on information from the GED dataset.

19. *ged_viol_fatal_state_best* – total best fatality estimates for all one-sided violence incidents perpetrated by state actors (as defined in (4)) recorded in a given cell month based on information from the GED dataset.

20. *ged_viol_fatal_state_high* – total highest fatality estimates for all one-sided violence incidents perpetrated by state actors (as defined in (4)) recorded in a given cell month based on information from the GED dataset.

21. *ged_viol_fatal_state_low* – total lowest fatality estimates for all one-sided violence incidents perpetrated by state actors (as defined in (4)) recorded in a given cell month based on information from the GED dataset.

22. *ged_viol_fatal_nonstate_best* – total best fatality estimates for all one-sided violence incidents perpetrated by non-state actors (as defined in (5)) recorded in a given cell month based on information from the GED dataset.

23. *ged_viol_fatal_nonstate_high* – total highest fatality estimates for all one-sided violence incidents perpetrated by non-state actors (as defined in (5)) recorded in a given cell month based on information from the GED dataset.

24. *ged_viol_fatal_nonstate_low* – total lowest fatality estimates for all one-sided violence incidents perpetrated by non-state actors (as defined in (5)) recorded in a given cell month based on information from the GED dataset.
ACLED

25. acled_battle_state – all incidents defined as “battles” initiated by state forces recorded in a given cell month based on information from the ACLED database.

26. acled_battle_rebel – all incidents defined as “battles” initiated by rebel groups recorded in a given cell month based on information from the ACLED database.

27. acled_battle_polmil – all incidents defined as “battles” initiated by political militias recorded in a given cell month based on information from the ACLED database.

28. acled_battle_idmil – all incidents defined as “battles” initiated by identity militias recorded in a given cell month based on information from the ACLED database.

29. acled_remote_state – all incidents defined as “explosions/remote violence” initiated by state forces recorded in a given cell month based on information from the ACLED database.

30. acled_remote_rebel – all incidents defined as “explosions/remote violence” initiated by rebel groups recorded in a given cell month based on information from the ACLED database.

31. acled_remote_polmil – all incidents defined as “explosions/remote violence” initiated by political militias recorded in a given cell month based on information from the ACLED database.

32. acled_remote_idmil – all incidents defined as “explosions/remote violence” initiated by identity militias recorded in a given cell month based on information from the ACLED database.

33. acled_viol_state – all incidents defined as “violence against civilians” initiated by state forces recorded in a given cell month based on information from the ACLED database.

34. acled_viol_rebel – all incidents defined as “violence against civilians” initiated by rebel groups recorded in a given cell month based on information from the ACLED database.

35. acled_viol_polmil – all incidents defined as “violence against civilians” initiated by political militias recorded in a given cell month based on information from the ACLED database.

36. acled_viol_idmil – all incidents defined as “violence against civilians” initiated by identity militias recorded in a given cell month based on information from the ACLED database.
37. **acled_riots** – all incidents defined as “riots” initiated by rioters recorded in a given cell month based on information from the ACLED database.

38. **acled_protests** – all incidents defined as “protests” initiated by protesters recorded in a given cell month based on information from the ACLED database.

39. **acled_fatal_state** – total fatality estimates from all conflict incidents initiated by state forces recorded in a given cell month based on information from the ACLED database.

40. **acled_fatal_rebel** – total fatality estimates from all conflict incidents initiated by rebel groups recorded in a given cell month based on information from the ACLED database.

41. **acled_fatal_polmil** – total fatality estimates from all conflict incidents initiated by political militias recorded in a given cell month based on information from the ACLED database.

42. **acled_fatal_idmil** – total fatality estimates from all conflict incidents initiated by identity militias recorded in a given cell month based on information from the ACLED database.

**PITF**

43. **pitf_state_inc** – all atrocity incidents perpetrated by state forces recorded in a given cell month based on information from the PITF dataset.

44. **pitf_state_camp** – all new/ongoing atrocity campaigns perpetrated by state forces recorded in a given cell month based on information from the PITF dataset.

45. **pitf_nonstate_sanc_inc** – all state-sanctioned atrocity incidents perpetrated by nonstate actors recorded in a given cell month based on information from the PITF dataset.

46. **pitf_nonstate_sanc_camp** – all state-sanctioned new/ongoing atrocity campaigns perpetrated by nonstate actors recorded in a given cell month based on information from the PITF dataset.

47. **pitf_nonstate_inc** – all unsanctioned atrocity incidents perpetrated by nonstate actors recorded in a given cell month based on information from the PITF dataset.

48. **pitf_nonstate_camp** – all unsanctioned new/ongoing atrocity campaigns perpetrated by nonstate actors recorded in a given cell month based on information from the PITF dataset.

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1 Note that when coding all PITF based indicators, we removed all contested and allegation-based events to ensure we include only substantiated events.
49. *pitf_multiple_inc* – all atrocity incidents perpetrated by multiple state and/or nonstate (pro- and anti-government) actors recorded in a given cell month based on information from the PITF dataset.

50. *pitf_multiple_camp* – all new/ongoing atrocity campaigns perpetrated by multiple state and/or nonstate (pro- and anti-government) actors recorded in a given cell month based on information from the PITF dataset.

51. *pitf_trans_inc* – all atrocity incidents perpetrated by transnational (state and/or nonstate) actors recorded in a given cell month based on information from the PITF database.

52. *pitf_trans_camp* – all new/ongoing atrocity campaigns perpetrated by transnational (state and/or nonstate) actors recorded in a given cell month based on information from the PITF database.

53. *pitf_tot_deaths_inc* – total fatality estimates from all atrocity incidents perpetrated by all actors recorded in a given cell month based on information from the PITF database.

54. *pitf_tot_deaths_camp* – total fatality estimates from all new/ongoing atrocity campaigns perpetrated by all actors recorded in a given cell month based on information from the PITF database.

55. *pitf_state_deaths_inc* – total fatality estimates from all atrocity incidents perpetrated by state forces recorded in a given cell month based on information from the PITF database.

56. *pitf_state_deaths_camp* – total fatality estimates from all new/ongoing atrocity campaigns perpetrated by state forces recorded in a given cell month based on information from the PITF database.

57. *pitf_nonstate_sanc_deaths_inc* – total fatality estimates from all state-sanctioned atrocity incidents perpetrated by nonstate actors recorded in a given cell month based on information from the PITF dataset.

58. *pitf_nonstate_sanc_deaths_camp* – total fatality estimates from all state-sanctioned all new/ongoing atrocity campaigns perpetrated by nonstate actors recorded in a given cell month based on information from the PITF dataset.

59. *pitf_nonstate_deaths_inc* – total fatality estimates from all unsanctioned atrocity incidents perpetrated by nonstate actors recorded in a given cell month based on information from the PITF dataset.
60. *pitf_nonstate_deaths_camp* – total fatality estimates from all unsanctioned all new/ongoing atrocity campaigns perpetrated by nonstate actors recorded in a given cell month based on information from the PITF dataset.

61. *pitf_multiple_deaths_inc* – total fatality estimates from all atrocity incidents perpetrated by perpetrated by multiple state and/or nonstate (pro- and anti-government) actors recorded in a given cell month based on information from the PITF dataset.

62. *pitf_multiple_deaths_camp* – total fatality estimates from all new/ongoing atrocity campaigns perpetrated by multiple state and/or nonstate (pro- and anti-government) actors recorded in a given cell month based on information from the PITF dataset.

63. *pitf_trans_deaths_inc* – total fatality estimates from all atrocity incidents perpetrated by perpetrated by transnational (state and/or nonstate) actors recorded in a given cell month based on information from the PITF dataset.

64. *pitf_trans_deaths_camp* – total fatality estimates from all new/ongoing atrocity campaigns perpetrated by perpetrated by transnational (state and/or nonstate) actors recorded in a given cell month based on information from the PITF dataset.

SCAD

65. *scad_org_demo* – all new/ongoing campaigns defined as “organized demonstrations” recorded in a given cell month based on information from the SCAD dataset.

66. *scad_spont_demo* – all new/ongoing campaigns defined as “spontaneous demonstrations” recorded in a given cell month based on information from the SCAD dataset.

67. *scad_viol_riot* – all new/ongoing campaigns defined as “organized violent riot” recorded in a given cell month based on information from the SCAD dataset.

68. *scad_spont_riot* – all new/ongoing campaigns defined as “spontaneous violent riot” recorded in a given cell month based on information from the SCAD dataset.

69. *scad_gen_strike* – all new/ongoing campaigns defined as “general strike” recorded in a given cell month based on information from the SCAD dataset.

70. *scad_lim_strike* – all new/ongoing campaigns defined as “limited strike” recorded in a given cell month based on information from the SCAD dataset.
71. *scad_gov_rep* – all new/ongoing campaigns defined as “pro-government violence (repression)” recorded in a given cell month based on information from the SCAD dataset.

72. *scad_anti_gov* – all new/ongoing campaigns defined as “anti-government violence” recorded in a given cell month based on information from the SCAD dataset.

73. *scad_nsa_viol* – all new/ongoing campaigns defined as “extra-government violence” by non-state groups recorded in a given cell month based on information from the SCAD dataset.

74. *scad_int_gov* – all new/ongoing campaigns defined as “intra-government violence” between two armed factions associated with different elements within the government recorded in a given cell month based on information from the SCAD dataset.

Environmental indicators

75. *NDVI_mean* – the average NDVI value across all 0.08° pixels within a given cell month based on the MODIStsp R package.

76. *NDVI_min* – the lowest NDVI value observed across all 0.08° pixels within a given cell month based on the MODIStsp R package.

77. *NDVI_max* – the highest NDVI value observed across all 0.08° pixels within a given cell month based on the MODIStsp R package.

78. *t.c.avg* – the average temperature across all 0.08° pixels within a given cell month based on the CRU TS monthly high resolution gridded multivariate climate dataset.

79. *t.anom* – the mean deviation (in Z-scored) from the 30-year rolling temperature average for all 0.08° pixels within a given cell month based on the CRU TS monthly high resolution gridded multivariate climate dataset.

80. *p.avg* – the average precipitation across 0.08° pixels within a given cell month based on the CRU TS monthly high resolution gridded multivariate climate dataset.

81. *p.anom anom* – the mean deviation (in Z-scored) from the 30-year rolling precipitation average for all 0.08° pixels within a given cell month based on the CRU TS monthly high resolution gridded multivariate climate dataset.
82. **SPEI** – the average SPEI across 0.5° grid cells, calculated based on temperature and precipitation measures from the CRU TS monthly high resolution gridded multivariate dataset.

**Socioeconomic indicators**

83. **NL_sum** – total nighttime light emission values (0 ⇔ 63 per pixel) for all 0.08° pixels within a given cell year based on Li et al. (2020).

84. **Population** – the total number of people recorded within all 0.08° pixels in a given cell year based on Li et al. (2020).

**ID indicators**

85. **month** – the month during which each grid cell was observed.

86. **year** – the year during which each grid cell was observed.

87. **ym** – a year-month-day format, where month corresponds to (86), year corresponds to (87), and the day is the first day of the month (always 1).

88. **latitude** – the latitude of each 0.5-degree cell’s centroid.

89. **longitude** – the longitude of each 0.5-degree cell’s centroid.

90. **gid** – a unique identified for each grid cell assigned in the PRIO-GRID dataset.

91. **COWCODE** – a three-number designation corresponding to the Correlates of War ID, assigning one cell to one country in any given year (cells were assigned to a country-year based on where the country in which the largest share of their area) using data from the CShapes dataset by Weidmann et al. (2010).

92. **country.name** – the name of the country identified in (92).

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2 X. Li, Y. Zhou, M. Zhao, and X. Zhao, “A harmonized global nighttime light dataset 1992–2018,” *Scientific data*, vol. 7, no. 1, pp. 1–9, 2020.

3 Weidmann, Nils B., Doreen Kuse & Kristian Skrede Gleditsch (2010) The geography of the international system: The CShapes Dataset. *International Interactions*, 36(1): 86-106.