



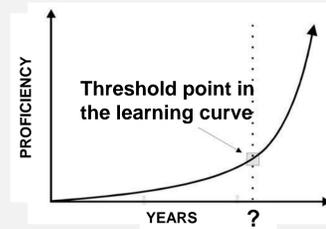
DANTE - An Open Community Platform for Accelerating Environment and Security Research and Development

<https://www.dante-project.org/>

ISciences, LLC; CIESIN-Columbia University; CASE Consultants International

CHALLENGES OF SOCIO-ECOLOGICAL DATA INTEGRATION:

- To identify (discover) and acquire newly available data;
- To evaluate differences with previously available data;



http://planet.botany.uwc.ac.za/nisl/GIS/GIS_pri mer/page_40.htm

- To harmonize and integrate existing and new data;
 - lack of technical expertise;
 - time required to process remote sensing images;
 - learning or training curve is steep and complex
- technical management of data (processing, storage) may require specialists.

- Advancements that might facilitate integration:
 - services that act as intermediaries between the sources and the users coming from other disciplines;
 - new tools to facilitate the incorporation of spatial environmental data and time series location-based estimates of environmental parameters into research projects.

DANTE - Data Analytics and Tools for Ecosecurity

- A two-year research and development effort to provide an open source software toolkit for systematic monitoring, forecasting, and analysis of environmental stresses and their impacts on security outcomes.
- Rationales:
 - recognition of the highly dynamic nature of data availability for environment-security analysis, as new data sets become available while others cease to be maintained or updated, or data are constantly being updated, but on irregular schedules.
- Need:
 - A suite of tools that implement best practices for data harmonization and integration can **significantly reduce the amount of time analysts spend on data preparation tasks.**

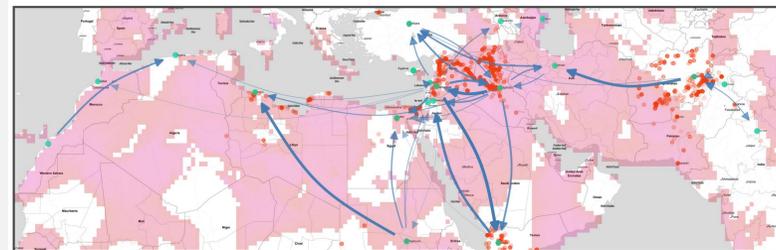
Expertise	Implementation	
	Slow	Fast
Require specialized expertise	Most work has been in this area	
Requires general competence		DANTE plans to produce tools in this area

DANTE's AIMS

- To develop an open-source software toolkit for systematic monitoring, forecasting and analysis of environmental stresses and their impacts on security outcomes;
- To create cross domain, cross scale data integration tools that fill critical gaps in the environment-security data analytics ecosystem.

TECHNICAL APPROACH

- Core functional model encapsulating and providing common methods for:
 - a diverse range of data;
 - data acquisition support tools;
 - data harmonization;
 - data integration tools.



Map 1: DANTE: Visualizing linkages between refugee outflows, climatic stress, and conflict in Northern Africa and Western Asia between 2013-2017. Data: UNHCR Refugee Flows (arrows), ACLED conflict (red dots), SPEI water stress (pink grid). (<https://www.dante-project.org/>)

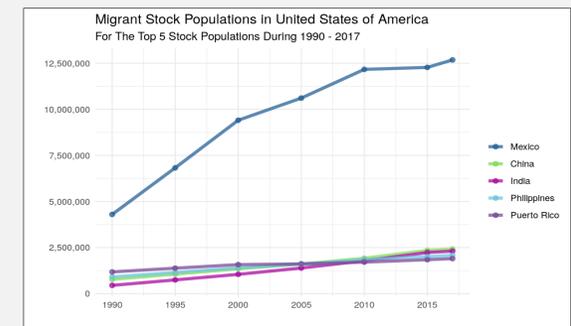
- Designed to work with R, ready to be integrated with additions tools, other platforms.
- Data support and use cases: designing, implementing and using platform components: in the initial stage, we will address the role of environmental stressors in three key areas:
 - Phase I will address tools and datasets for analysis of **international migration and refugee/asylum flows.** (currently under development (see Map 1) (based on Abel et al. 2019) (1))
 - Phase II will address tools and datasets for analysis of **internal migration/displacement** and of **populations that become isolated as the result of hazards or conflict.**
 - Phase III will address tools and datasets for analysis of **conflict and political instability.**

(1) Abel, Guy J., Michael Brottrager, Jesus Crespo Cuaresma and Raya Muttarak. 2019. "Climate, Conflict and Forced Migration." *Global Environmental Change* 54:239-49. doi: <https://doi.org/10.1016/j.gloenvcha.2018.12.003>.

LATEST DEVELOPMENTS

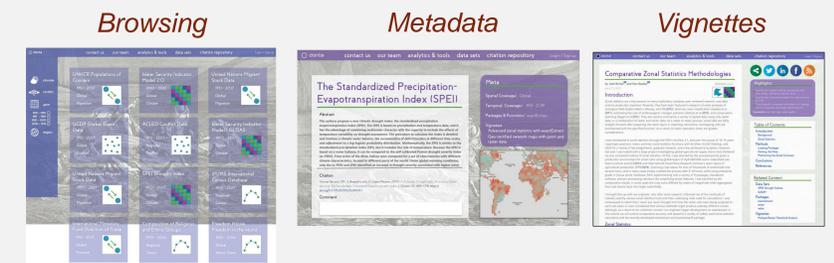
- Two R packages (including websites and code repositories) already operational:
 - untools** <https://dante-sttr.gitlab.io/untools/index.html>
 - The untools package provides a suite of tools to facilitate acquiring, processing, and visualizing United Nations Persons of Concern and Migrant Stock datasets
 - Example: Plot a time series of the top migrant stock populations in the United States using the ISO3 character code.

```
usa.stocks.ts<-plot(stocks17, country = "USA")
```



Developed by Joshua Brinks

- danteSubmit** <https://dante-sttr.gitlab.io/dantesubmit/index.html>
 - danteSubmit is an R package that disperses HTML templates for DANTE Project datasets and vignettes submissions.
 - Future update may add support for function and package submission in addition to additional outputs (LaTeX - PDF).
 - Package updates are tracked in the newsfeed.
- Website operational: <https://.dante-project.org>



DANTE Team: T. Parris (PI), R. Chen (Co-PI), E. Shea (Consultant)
S. Adamo, D. Baston, J. Brinks, A. de Sherbinin, L. Emmer, M. Levy, K. MacManus, J. Squires, S. Vinay.



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