

Satellite Data for Environmental Justice: The SD4EJ Tiger Team

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Environmental Justice

“Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.” (EPA)

Objectives of EJ research and practice

- Understanding and monitoring disparate patterns of environmental exposures across populations
- Understanding the consequences of exposure disparities
- Identifying vulnerable communities
- Identifying underlying causes
- Developing interventions
- Evaluating interventions
- Public education
- Community engagement

Satellite Data for EJ

- Unique advantages of SD in EJ research and practice
 - High spatial resolution
 - Wide and continuous geographic and temporal coverage
- Growing need for satellite data by EJ organizations
 - Data
 - Analytic tools
 - Visualization tools
 - Platforms for exchanging resources and ideas

SD4EJ Tiger Team

- What is a Tiger Team?

“A Tiger Team is a short-term, high-impact collaborative effort between HAQAST members and public stakeholders to identify and solve an immediate problem using NASA data and products.”

<https://haqast.org/tiger-teams/>

- 1st SD4EJ TT: 08/2021-02/2023
- 2nd SD4EJ TT: 08/2023-02/2025

1st SD4EJ Tiger Team Recap

- Engaged a diverse group of partners and stakeholders
 - Monthly meetings registered by 150+ people from academic institutions, governmental organizations, NGOs, industries and think tanks.
 - Diverse presentations by researchers and stakeholders
- Integrated SD into EJ mapping tools
- Increased accessibility to SD for EJ applications
 - SD4EJ webpage (<https://haqast.org/ej/>)
 - How-to documents
 - ARSET training
- Fostered EJ research using SD (review paper)

New SD4EJ TT: Objectives

The overarching objective is to build capacity among EJ communities for applying satellite data to advance EJ.

- Facilitating communication and collaboration between stakeholders and researchers
 - Monthly meetings
 - SD4EJ forum
- Building resources to provide data and tools for EJ research and practice.
 - Website
- Providing data and technical support to fulfill specific needs of stakeholders.
 - Collaborative projects between researchers and stakeholders

Monthly Meetings

- 1st Wednesday of the month
- Open to everyone on our mailing list (contact me if you want to be added)
- Facilitate the exchange of ideas and resources and collaborations
- Broad discussions
- Presentations
 - Researcher presentations
 - Stakeholder presentations

Collaborative projects

- Chinatown project (stakeholder: EDF)
- Multiple exposure review project (stakeholder: CDC EJI team)
- Chicago Light at night analysis (stakeholder: Adler Planetarium)

Chinatown Project (EDF)

- Initiated by the EDF.
- Focuses on air quality, light and noise pollution in Manhattan Chinatown.
- Main issues:
 - Local residents have concerns about various pollution sources.
 - There is limited ground monitoring.
- Objectives:
 - Provide data and visualization tools for characterizing exposure burdens.

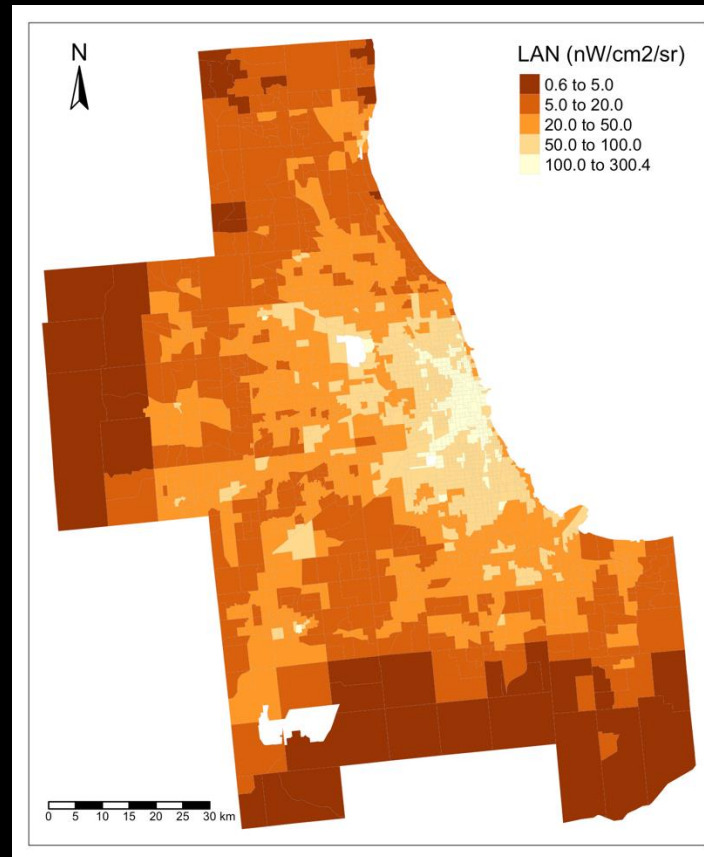
Review paper on multiple exposures (CDC)

- Grew out of discussions with the CDC's EJ Index Team.
- Focuses on reviewing the current research landscape concerning multiple exposures to environmental hazards.
- Main issues:
 - Disadvantaged neighborhoods are often exposed to both physical and social adversities in the environment.
 - Main question: how does social disadvantage modulate the health effects of physical exposures?
- Objectives:
 - Conduct comprehensive review of the current literature.
 - Provide evidence that will guide future research and help with the refinement of environmental measures.

Light at night in Chicago (Adler Planetarium)

- Adler Planetarium has already been working with low-income communities in Chicago about light pollution.
- Main issue:
 - There is an interest for satellite data and relevant analysis on LAN and social disadvantage.
- Objective:
 - Provide data and analysis.
 - Participate in future community engagement projects.

Light at night



Social Vulnerability

