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CSP 571

Project - Group & Topic Form

Part 1

Group members: Brandon Bennitt and Yashwanth Praveen Pasupuleti

Group Leader: Brandon Bennitt

Part 2

Application Subject Area: Marine/Ocean Pollution

Specific Dataset and Sources:

- Marine Debris Monitoring and Assessment Project (MDMAP) Accumulation Report: Plastic Pollution
    - Short summary: Sourced from the NOAA, this is the integrated, cleaned, and filtered version of the Marine Debris Monitoring and Assessment Program's Accumulation Data set. Sourced from the Ocean Conservancy
    - Link with dataset and summary: https://globalearthchallenge.earthday.org/datasets/EC2020::data-marine-debris-monitoring-and-assessment-project-mdmap-accumulation-report-plastic-pollution/about
- Earth Challenge Integrated Data: Plastic Pollution (MLW, MDMAP, ICC) 2015-2018
    - Sourced from three citizen science marine litter projects, this is an interoperable global plastics dataset from 2015-2018, data has been cleaned and analyzed with a common data schema. The data contains approximately 55,000 rows with metrics such as location of pollution, type of plastic, and total count of plastics along with many more.
    - Link with dataset and summary: https://globalearthchallenge.earthday.org/datasets/EC2020::data-earth-challenge-integrated-data-plastic-pollution-mlw-mdmap-icc-2015-2018/about
- Earth Challenge Integrated Data: Top 10 Sources of Plastic Pollution by Country

    - This data set lists the Top 10 most common plastics found by country in 153 countries. It combines three citizen science projects and organizes the data to be interpretable as one data set.
    - Link with dataset and summary: https://globalearthchallenge.earthday.org/datasets/EC2020::data-earth-challenge-integrated-data-top-10-sources-of-plastic-pollution-by-country-/about
- Plastic Waste Inputs from Land into the Ocean
    - Short summary: Data used in a study that has different waste and marine pollution metrics on 192 different countries. Study presents models linking different variables to pollution contribution by country.
    - Link with dataset and summary: https://www.science.org/doi/10.1126/science.1260352
- Evidence that the Great Pacific Garbage patch is rapidly accumulating plastic
    - Short summary: This paper contains many different citations to other data that was used in this paper. It draws on satellite data from NASA, plastic production rates, and more to come to the conclusion that a giant garbage patch in the pacific ocean is growing exponentially. There is a potential to use the same data sources that are cited in this paper to draw on conclusions about ocean plastic pollution,
    - Link with paper and data resources: https://www.nature.com/articles/s41598-018-22939-w

Reference Resources:

- NAOO article:
    - Short summary: General article on what pollution is, related definitions, and some effects of marine pollution.
    - https://www.noaa.gov/education/resource-collections/ocean-coasts/ocean-pollution
- Oceans at MIT article:
    - Short summary: Article describing some of the research of Dr. Marcus Eriksen who has been a guest lecturer at top universities such as MIT. The paper the article summarizes talks about 5 years of observational work at sea where he collected data on pollution in the oceans. The article points out some interesting findings from Dr. Eriksen's research, and highlights how he thinks we may be able to solve the marine plastic problem.
    - http://oceans.mit.edu/news/featured-stories/269000-tons-plastic-ocean-now-dr-marcus-eriksen.html
- PLOS ONE:
    - The paper and abstract that was discussed in the Oceans at MIT article is found on this website. There are several figures that describe models that were made from

the study as well as all research and results from 5 years of observational studies at sea exploring marine pollution. The main goal of the paper was to estimate how much pollution is at sea and grouping the garbage into different categories as well.
    - https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0111913
- Plastic Pollution:
    - Summary: This is a website that took data from 4 different sources/papers and did some data visualization to answer a range of questions about plastic pollution in the environment. The data taken from other sources is all open access and graphs/plots can be used with citation. Each paper provides different findings given that the studies were focused around researching a slightly different area of marine pollution.
    - https://ourworldindata.org/plastic-pollution?utm_source=newsletter

- Plastic Pollution an Ocean Emergency:
    - Summary: Short paper on plastic pollution, its effects on marine wildlife, and an explanation for what can be done to reduce waste.
    - Link: https://www.researchgate.net/profile/Wallace-Nichols/publication/268187066_Editorial_Plastic_Pollution_An_Ocean_Emergency/links/54c622550cf256ed5a9c8f3c/Editorial-Plastic-Pollution-An-Ocean-Emergency.pdf

- Plastic Pollution of the World's Seas:
    - Short article on plastic pollution in the world's oceans that outlines the problem, governmental decisions impacting the pollution, and a way to move forward.
    - Link: https://www.nature.com/articles/s41467-018-03104-3.pdf

Supplemental Resources:

- National Oceanic and Atmospheric Administration (NOAA) Data Source
    - Many of the data sets that are listed under potential data sources draw from various data sets from the NOAA. We will include the NOAA data site as a reference as well as possible source of data for this project.
    - Link to general NOAA data website: https://data.noaa.gov/datasetsearch/