Data Article

Metadata for climate change adaptation plans of small and mid-size French and American cities

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\textbf{ARTICLE INFO}

\textbf{Article history:}
Received 7 February 2021
Revised 10 March 2021
Accepted 15 March 2021
Available online 24 March 2021

\textbf{Keywords:}
Climate adaptation plan
Monitoring and evaluation system
Metadata
Community
Small and mid-size city
United States
France

\textbf{ABSTRACT}

The present dataset consists of metadata for 36 examples of publicly available multi-issue climate change adaptation plans of small and mid-size urban communities in France and the United States. Compiled by Lioubimtseva and da Cunha [1] as a pilot sample for a comprehensive monitoring and evaluation system developed by the authors, the complete dataset comprises assessment results based on 24 criteria of the plans’ structure, content, and development process. To protect information about quality scores of individual planning documents, this published part of our dataset is limited to the essential information about the cities’ profiles and their adaptation plans, with plan assessment results presented in Boolean format instead of actual rating scores, and the highlights of the strong points of each plan (instead of the actual quantitative scores generated in our study). The purpose of this dataset is to provide users with references to examples of strong points of the first generation climate adaptation plans developed between 2007 and 2017 in both countries.

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## Specifications Table

| Subject                        | Planning and Development |
|-------------------------------|---------------------------|
| Specific subject area         | Climate change adaptation planning |
| Type of data                  | Table                     |
|                               | Figure                    |
|                               | Image                     |
| How data were acquired        | Exploitation of national databases, institutional websites, and email communications with host agencies |
| Data format                   | Structured                |
|                               | Categorized               |
|                               | Analyzed                  |
| Parameters for data collection| Climate adaptation plans downloaded on cities institutional websites |
| Description of data collection| National databases, institutional websites, and email communications with host agencies |
| Data source location          | Primary Data Source (more details on Mendeley Data, V1, doi:https://doi.org/10.17632/3bw6k4fy4y.1) |
|                               | U.S. climate plans on the following cities institutional websites: |
|                               | City of Homer, AK        |
|                               | Taos County & Town of Taos, NM |
|                               | City of Waveland, MS    |
|                               | Laguna Woods, CA        |
|                               | Punta Gorda, FL         |
|                               | Marquette, MI           |
|                               | Keene, NH               |
|                               | Chester, PA Groton, CT  |
|                               | Sarasota, FL           |
|                               | Santa Cruz, CA          |
|                               | Flagstaff, AZ           |
|                               | Santa Fe River watershed & Santa Fe County, NM & Santa Fe, NM |
|                               | Santa Barbara, CA       |
|                               | Albany, NY              |
|                               | Boulder County, CO      |
|                               | City of Boulder, CO     |
|                               | Berkeley, CA            |
|                               | Alexandria, VA          |
|                               | Grand Rapids, MI        |
|                               | Chula Vista, CA         |
|                               | French climate plans on the following cities institutional websites: |
|                               | CC de la Vallée de Chamonix-Mont-Blanc |
|                               | CC de Montrevel en Bresse |
|                               | CC Caux Vallée de Seine (CVS) |
|                               | CA Var Esterel Méditerranée (CAVEM) |
|                               | Le Grand Chalon         |
|                               | CA du Niortais          |
|                               | Cherbourg-en-Cotentin   |
|                               | CA du Centre de la Martinique (CAcem) |
|                               | CU de Dunkerque         |
|                               | Brest Métropole         |
|                               | Dijon Métropole         |
|                               | Grand Nancy             |
|                               | Perpignan Méditerranée Métropole |
|                               | Clermont Auvergne Métropole |
|                               | Saint-Étienne Métropole |
|                               | PCET Ouest 06: CA Sophia Antipolis (CASA), CA du Pays de Grasse (CAPG), Cannes Pays de Lérins (CAPL) |
| Data accessibility            | In a public repository   |
|                               | Repository name: Mendeley Data |
|                               | Data identification number: Mendeley Data, V1, doi:https://doi.org/10.17632/3bw6k4fy4y.1 |
|                               | Direct URL to data: https://data.mendeley.com/datasets/3bw6k4fy4y/1 |
| Related research article      | Lioubimtseva, E., da Cunha, C. (2020). Local climate change adaptation plans in the US and France: comparison and lessons learned in 2007–2017. Urban Climate, 31, 100,577. doi: https://doi.org/10.1016/j.uclim.2019.100577 |
Value of the Data

- The data provide a sample collection of 36 first-generation climate change adaptation plans developed by small and mid-size urban communities in France and the United States, including the metadata and some key attributes of the plans based on the assessment by Lioubimtseva and da Cunha [1]. It provides highlights of strong points of case studies, along with plan access information that can be used for future analysis or as examples for development of future climate change adaptation plans.
- This dataset is primarily intended to help small urban communities, planning professionals, and local governments, interested to tap into the recent experience of their peers, both at home and internationally.
- The dataset compiles location, population, basic climate data, and plan access data for 36 representative urban communities with population between 5000 and 300,000 people selected by the authors. It is a valuable source of information for urban planners, local governments, and researchers, as a library of cases studies and their best practices and also as a benchmark for future broader studies.

1. Data Description

The number of local climate adaptation plans is growing in many countries. Nevertheless, the monitoring of these plans and their strengths and weaknesses has been very limited. Planners, environmental organizations, and especially local communities urgently need comparable data about existing planning efforts, cross-national knowledge sharing, collaboration, peer-learning, and transfer of successful planning practices.

The complete dataset consists of 1) metadata for 36 first-generation multi-issue climate adaptation plans, developed by small and mid-size urban communities in 2007–2017 (20 in the United States (U.S.) and 16 in France); 2) assessment results based on 24 criteria derived from climate adaptation literature in English and in French; and 3) a word cloud, based on the plans review. The complete dataset can be found as Mendeley Data [2].

The dataset consists of record cards providing the key geographic information about each city and the results of our assessment of its climate change adaptation plan (Table 1). Two data files (Record_cards_US_Plans.pdf and Record_cards_French_Plans.pdf) display record cards for the U.S. and French cities, spatially linked in the GIS to the geographic coordinates on the respective national maps (Fig. 1A and B in [1]).

We describe the sections of Table 1 below.

- **Place**: name and location of the community served by the climate adaptation plan.
- **Latitude and longitude**: geographic coordinates of the place of the plan as decimal fractions.
- **Population**: the last national census data from the US Census 2010 [3] and INSEE 2015 [2].

When a plan covers both a city/town and a broader administrative or census designated area both population numbers are provided.

- **Climate**: World climate types based on the Köppen–Geiger climate classification [4].
- **City website**: website of the community served by the climate adaptation plan (not necessary hosting it or sponsoring it).
- **Climate adaptation document(s)**: complete title of the plan and its annexes in the language of its country of origin.
- **Publication year**: based on the copyright date or date of publication indicated on its cover page.
- **Plan number of pages**.
- **Annexes**: number of pages and publication year (if applicable).
- **Authors**: Primary authors of the document as listed on the cover pages or in the copyright (may include names of individuals or organizations).
Other contributors: all contributors listed on the cover page of a plan, acknowledgements and other components of a plan besides the Authors.

Last access website or contact email: the URL of the published plan (if available) with the date of the last access. Contact email of the corresponding authors if the document is not accessible on the Internet.

Additional documents examined in the study: additional documentation that have been used in this evaluation to understand the planning context, such as related climate action plans, hazard mitigation plans, and, if available, revised and more recent plans, with their URLs and the last date of access.

Key attributes of the plan: summary of the plan assessment results based on 24 criteria. For the purpose of this open access publication the ranking scores for criteria and qualitative total scores of plans are replaced by Boolean data (Yes or No), where No means <1 and Yes means >1. The criteria field is highlighted in blue if the score is 4 (excellent). Scores 1–3.99 are coded as Yes, Scores 0–0.99 are coded as No. The criteria ranked as 4 are highlighted in the dataset as exemplary strong points to guide users to the most relevant examples. Complete analysis of the actual scores can be found in Lioubimtseva and da Cunha [1].
Table 2
Local administrative divisions in France reflected in the names of PCAETs [11,12].

| Name                                      | Abbreviation | Definition                                                                                                                                 |
|--------------------------------------------|--------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Communautés urbaines (urban communities)   | CU           | A public institution of intercommunal cooperation with its own taxation (EPCI) bringing together several municipalities forming, on the date of its creation, a group of more than 500,000 inhabitants. It provides for important integration of member municipalities in most of cities competences. |
| Communautés d’agglomération (agglomeration communities) | CA           | An EPCI bringing together several municipalities forming, on the date of its creation, a group of more than 50,000 inhabitants in one piece and without any enclave, around one or more communes center of more than 15,000 inhabitants. It provides an integration of member municipalities on, at least, these competences: urban policy economic development, community planning; social balance of habitat. |
| Communautés des communes (communes communities) | CC           | An EPCI bringing together several municipalities forming, on the date of its creation, a group of municipalities in one piece and without any enclave. Its purpose is to associate municipalities within a solidarity area, with a view to developing a joint project for development and spatial planning. |

The dataset also includes a new datum – a word cloud - based on the plans review (Words Cloud.jpg). These words are a guesstimate providing a synthetic vision of the key concepts commonly addressed in local climate adaptation plans. It highlights different categories of keywords, for example, the processes and tools used during the creation of the plans (use of climate scenario, participation, vulnerability assessment, indicator) and different scales (international, European, national, regional). The word cloud was generated from the text of our main article with Atlas.Ti software. Using the Word Cruncher count of all words in the article, we highlighted those occurring more than 16 times and excluded common words using the stop and go list function.

This data article displays three tables:

• **Table 1** offers the definition of local administrative divisions in France reflected in the names of PCAETs.
• **Table 2** is a geographic and bibliographic locator of climate adaptation plans for small and mid-size urban communities in France and the United States.
• **Table 3** provides an overview of the structure of the record cards displayed as supplementary material. It includes the key geographic information about each city and provides a full bibliographic record and assessment summary of their climate adaptation plans.
• **Fig. 1** display a radar of quality scores of climate adaptation plans in terms of 1) structure and organization of adaptation plans; 2) quality of their content and scientific basis; and 3) plan development process, inclusivity, and coordination.

2. Experimental Design, Materials and Methods

Compiled as a pilot sample for the analysis of structure, content, and planning process of local adaptation plans [1], the study compares the U.S. and French local plans because the two countries exemplify conceptually different models of climate planning.

2.1. Selection of the U.S. and French plans

We selected 36 multi-issue local climate change adaptation plans of small and mid-size cities (population between 5000 and 300,000 people), representative of diverse climate types and
Table 3
French and American climate adaptation plans cities information.

| Place | Population 2015 (INSEE, 2018) | Climate adaptation planning document | Year published | Metadata record ## |
|-------|---------------------------------|--------------------------------------|----------------|-------------------|
| CC de la Vallée de Chamonix-Mont-Blanc | (13,150) Chamonix: 8906 | Plan Climat Energie Territorial de la Vallée de Chamonix-Mont-Blanc - Plan d’actions | 2012 | 1FR |
| CC de Montrevel en Bresse | (17,517) Montrevel en Bresse: 2439 | Le Plan climat énergie territorial (PCET) - Programmes d’actions | 2011 | 2FR |
| CC Caux Vallée de Seine (CVS) | (76,842) Bolbec: 11,679 (111,657) Fréjus: 52,897 | Plan Climat Energie Territorial 2014–2020 | 2013 | 3FR |
| CA Var Estérel Méditerranée (CAVEM) | | Rapport stratégique – Plan Air-Energie Climat-Territorial - 2015–2020 | 2016 | 4FR |
| Le Grand Chalon | (113,746) Chalon-sur-Saône: 45,390 | Plan Climat Energie Territorial – Grand Chalon | 2012 | 5FR |
| CA du Niortais | (120,545) Niort: 58,952 (120,829) Cherbourg: 190,547 | Plan Climat Energie Territorial - Communauté d’Agglomération de Niort | 2013 | 6FR |
| Cherbourg-en-Cotentin | | Plan Climat Energie Territorial (PCET) de la Communauté Urbaine de Cherbourg - Programme d’actions | 2013 | 7FR |
| CA du Centre de la Martinique (CACEM) | (158,944) Fort de France: 82,502 | Plan Climat Territoire CACEM - Plan d’actions 2012–2017 | 2012 | 8FR |
| CU de Dunkerque | (199,893) Dunkerque: 88,876 (208,497) Brest: 139,163 | Plan Air Climat Energie Territorial 2015–2021 | 2015 | 9FR |
| Brest Métropole | | Plan Climat énergie. Le temps est à l’action - 2012–2017 | 2012 | 10FR |
| Dijon Métropole | (251,650) Dijon: 155,114 (256,558) Nancy: 105,162 (266,909) Perpignan: 121,934 | IIIICO: le Plan Climat Energie du Grand Dijon | 2011 | 11FR |
| Grand Nancy | | Plan Climat Air Energie Territorial du Grand Nancy | 2012 | 12FR |
| Perpignan Métropolitaine | | Plan Climat-Energie Territorial (2012–2017) | 2012 | 13FR |
| Clermont Auvergne Métropole | (286,190) Clermont-Ferrand: 141,398 (402,882) Saint Etienne: 171,057 (436,560) Antibes: 74,875 (CAPG: 101,860) Grasse: 50,937 (CAPL: 158,225) Cannes: 74,285 | Plan Air-Energie Climat-Territorial (PAECT) | 2014 | 14FR |
| Saint-Etienne Métropole | | Plan Climat Energie Territorial de Saint-Etienne Métropole | 2011 | 15FR |
| PCET Ouest 06: CA Sophia Antipolis (CASA) | (175,908) Antibes: 74,875 (CAPG: 101,860) Grasse: 50,937 (CAPL: 158,225) Cannes: 74,285 | Plan climat énergie Ouest 06 | 2012 | 16FR |

| Place | Population (U.S. Census 2010) | Climate adaptation planning document | Year published | Metadata record ## |
|-------|---------------------------------|--------------------------------------|----------------|-------------------|
| City of Homer, AK | | City of Homer Climate Action Plan for Taos County, NM | 2007 | 1US |
| Taos County Town of Taos, NM | | Forest and Water Climate Adaptation: a Plan for Taos County, NM | 2010 | 2US |
| City of Waveland, MS | | City of Waveland Local Hazard Mitigation Plan | 2013 | 3US |
| Laguna Woods, CA | 16,192 | City of Laguna Woods Climate Adaptation Plan | 2014 | 4US |

(continued on next page)
geographic regions of the US and France. The selection of adaptation plans is fully explained in [1, p4].

Online databases and bibliographic review were used as a departure point to identify communities with existing climate adaptation plans and their umbrella organizations. We used Google searches to locate websites of the cities, the published plans, and other additional documents (annexes, prior plans and related reports). The last access date of the plans has been specified in the record cards [2]. Population numbers were obtained from the national censuses’ websites [3,4] and climatic types of each location were identified based on Köppen classification [5].

French climate adaptation plans were located through the national ADEME (Agence de l'environnement et de la maîtrise de l'énergie – French Environment and Energy Management Agency) database [6]. The sample includes case studies from all climate zones and diverse geographic regions of France (Atlantic and Mediterranean coasts, the Alps and Massif Central, and overseas territories as Martinique). Examination of completion of adaptation plans by the communities meeting our criteria has led us to the sample of 16 Territorial Climate, Air, and Energy Plans1 (PCAET/PCETs) of 18 urban communities. The selection includes plans of 7 “communautés urbaines” (CU), 5 “communautés d’agglomération” (CA), and 3 “communauté de communes” (CC) (see Fig. 1A in [1] and Table 2). Definitions of these local administrative divisions in France are available in Table 1. Some exceptions should be noted for French communities: the PCAET “Ouest 06” is a joint climate adaptation plan by three adjacent small cities (Sophia Antipolis, Pays de Grasse and Cannes Pays de Lérins) and the adaptation plan of Saint-Etienne Metropole covers an

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1 Plans climat air énergie territoriaux (PCAET) or Plans climat énergie territoriaux (PCET).
ensemble of suburban and rural communities, higher than 300,000 people, adjacent to the main mid-size city of Saint Etienne.

To locate the U.S. climate adaptation plans we used online datasets of the Georgetown Climate Center Adaptation Clearinghouse [7], ICLEI USA [8], Local Model Forest Policy Program Climate Solutions University [9], and the U.S. EPA Climate Change Adaptation Resource Center [10]; independent reports, and scholarly reviews to identify cities meeting our selection criteria. The complete list of bibliographic sources can be found in Lioubimtseva and da Cunha [1]. The sample captures the majority of climate types and geographic regions of the United States, e.g. coastal areas, the Rockies, the Great Lakes, and Alaska. It includes 12 stand-alone municipal climate adaptation plans clearly titled as such, 5 climate action plans including adaptation and mitigation, 1 climate resiliency plan, one climate preparedness plan, and one local hazard mitigation plan, all based on their primary focus on climate adaptation planning, despite the terminological differences in their titles. The U.S. sample includes plans of 15 cities, 2 towns, 2 counties, and one watershed climate adaptation plan from 13 U.S. states (see Fig. 1B in [1] and Table 2).²

2.2. Plan assessment methodology

To facilitate monitoring, knowledge sharing, and cross-border comparison of climate adaptation plans we have developed a uniform system of 24 indicators, derived from the international bilingual literature (see Table 3 in [1]). This indicators system integrate the key aspects of structure and organization of adaptation plans (Group I); quality of their content and scientific basis (Group II); and plan development process, inclusivity, and coordination (Group III).

Ranking of each criteria of adaptation planning quality is based on a 0–4 scale: Lacking 0–0.99, Mentioned 1–1.99, Present 2–2.99, Explained 3–3.99, Clearly explained 4.

The same 0 to 4 ranking scale is used for the total values, defined as following: Poor 0–0.99, Fair 1–1.99, Good 2–2.99, Very good 3–3.99, Excellent 4.

² When a plan covers both a city/town and a broader administrative or census designated area both population numbers are provided. The upper figure in brackets is the population of the entire administrative or census designated division, the lower number is the population of the main city/town covered by the adaptation plan.
Complete analysis of the scores can be found in Lioubimtseva and da Cunha [1]. To protect information about quality scores of individual adaptation plans, we have excluded raw quantitative scores generated through the study from the publication. For the purpose of this open access publication the ranking scores for criteria and qualitative total scores of plans have been masked and replaced by the Boolean data (Yes or No), where No means <1 and Yes means >1. The criteria ranked as 4 are highlighted in the dataset as exemplary strong points of each plan. Such format is chosen to guide users to examples of strengths in each climate adaptation plan without publicly disclosing all assessment scores.

2.3. Findings at glance

On average, French plans show slightly higher overall quality score compared to the U.S. plans (2.63 vs. 2.50), with more extreme quality range (1.17 – 3.29 vs. 1.63 – 3.48) and higher dispersion (SD 0.63 vs. 0.45) respectively (see Table 4 in [1]).

In Group I, the average scores of all plans are relatively good (2.27), ranging from 1.0 to 3.38 with SD 0.73 indicating high variability of scores. The French plans clearly score higher than the U.S. plans on average (2.43 vs. 2.14) and show lower dispersion (range 1.5 – 3.5 with SD 0.56 vs. 1.0 – 3.83 with SD 0.83). The average score for group II is 2.71 with a higher average value for the U.S. (2.78) than French (2.61) plans. The quality of French plans in this group is more variable (R 0.58 – 3.67, SD 0.86), compared to the U.S. plans (R 1.67 – 3.42, SD 0.53). In group III the overall average score of all included plans is 2.55, with French plans scoring higher (2.85) compared to U.S. plans (2.29) and showing lower dispersion (SD 0.61 vs. 0.70) (Fig. 1).

Ethics Statement

The process of data collection does not involve experiment, or human sample.

CRediT Author Statement

Charlotte da Cunha: Conceptualization, Methodology, Formal analysis, Writing-Reviewing and Editing; Elena Lioubimtseva: Conceptualization, Methodology, Formal analysis, Writing-Reviewing and Editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships which have or could be perceived to have influenced the work reported in this article.

Acknowledgments

Elena Lioubimtseva’s research stay at the University of Versailles was possible thanks to sabbatical leave from Grand Valley State University and grants from Pew Faculty Teaching and Learning Center and the Center for Scholarly and Creative Excellence at GVSU.

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