Study of urban climate as a basis for adaptation and planning in Chilean cities

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• In Chile, like in most of Latin American cities, urban climates are not considered in urban planning and design.

• Especially during the last decades, urban growth has been a very relevant environmental transformation produced under a neoliberal socioeconomic model that privilege free market and the privatization of resources and places, and, as a consequence, a reduction of public policies related with urban development and environmental protection.

• Chile is usually presented as an exemplar of socioeconomic development following neoliberal premises.

• Chile has the highest GDP and HDI in Latin America but also the highest GINI Coefficient that measures social inequality.

• Climatic hazards and risks, air pollution and an uneven distribution of climate and aire quality are pervasive and increasing issues in cities dominated by social and spatial segregation.

• Urban climate are mainly a political issue of social and environmental justice.

• The dialog among researchers (interdisciplinarity), decision makers and society (governance) are an important necessity in the whole region.
Our research Project supported by the Chilean National Science Foundation is studying cities located in quite contrasting regional climates like Atacama desert, Mediterranean and Temperate Mediterranean regions which have or are still confronting severe extreme events like droughts, floods, wood fires and air pollution

<table>
<thead>
<tr>
<th>City</th>
<th>Population</th>
<th>Temperature annual average</th>
<th>Total annual precipitation</th>
<th>Number of urban measuring instruments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rural station</td>
<td>Urban station</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antofagasta</td>
<td>309.832</td>
<td>17.4</td>
<td>19.5</td>
<td>1.7</td>
</tr>
<tr>
<td>Calama</td>
<td>143.084</td>
<td>14.5</td>
<td>16.3</td>
<td>5.7</td>
</tr>
<tr>
<td>Valparaíso</td>
<td>282.448</td>
<td>13.4</td>
<td>16.1</td>
<td>372.5</td>
</tr>
<tr>
<td>Santiago</td>
<td>4.837.295</td>
<td>16.2</td>
<td>23.2</td>
<td>312.5</td>
</tr>
<tr>
<td>Concepción</td>
<td>215.413</td>
<td>14.4</td>
<td>16.2</td>
<td>1.110</td>
</tr>
<tr>
<td>Chillán</td>
<td>150.396</td>
<td>14.4</td>
<td>15.5</td>
<td>1.107</td>
</tr>
</tbody>
</table>

Table 1. Latitude, population, average rural and urban temperatures and number of measuring instruments installed in selected Chilean cities

Figure 1. Location of selected cities.
Figure 3. Local Climate Zones in the arid cities of Antofagasta (a) and Calama (b), Northern Chile
Figure 4. Local Climate Zones in the Mediterranean Climate Type cities of Valparaiso (a) and Santiago (b), Central Chile
Figure 5. Local Climate Zones in the Southern Border of Mediterranean Climate Types cities of Concepción (a) and Chillán (b)
Figure 6. Rural-urban thermal gradient of cities of Antofagasta, Calama, Valparaíso, Santiago, Concepción and Chillán.
Contaminación por PM10 y Vientos en Santiago
11 de Mayo 2009, 08:00PM

Temperatura Promedio en Santiago
11 de Mayo 2009, 08:00PM