ARDC use cases for Senegal

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- The Centre de Suivi Écologique (CSE) is a national entity located in Senegal whose core activities include environmental monitoring, natural resources management and conducting environmental impact assessments.
- CSE interventions cover various areas such as support for land-use planning and urban management, scientific and technical support for sustainable land management, support for decentralized management of natural resources, environmental and social assessments, monitoring of efforts to combat poverty, support for the fight against climate change.
# Senegal Use cases

<table>
<thead>
<tr>
<th>Country</th>
<th>Use cases</th>
<th>Institutions</th>
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</thead>
<tbody>
<tr>
<td>Senegal</td>
<td>Urbanisation</td>
<td>Ministry of urbanization, KRANTH, ANAT/DTGC</td>
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<tr>
<td></td>
<td>Agriculture</td>
<td>IPAR, Ministry of Agriculture, Directorate of Analysis, Forecasting and Agricultural Statistics, KRANTH</td>
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<td></td>
<td>Deforestation</td>
<td>Ministry of Environment (DEEC, Forestry and Parks)</td>
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<td></td>
<td>Water</td>
<td>DGPRE, Meteorological Service of Senegal, Le Centre de Suivi Ecologique, ENDA Énergie</td>
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- SDGs - 6.3.2 – water quality, 6.6.1 – water extent, 11.3.1 – urbanisation, 15.1.1 – deforestation, 15.3.1 – degradation
Use case – Agriculture near Lac de Guiers, Senegal

Line Plot of NDVI for Each Year

gaussian filter fit of mean of 2010
 gaussian filter fit of mean of 2011
 gaussian filter fit of mean of 2012
 gaussian filter fit of mean of 2013
 gaussian filter fit of mean of 2014
 gaussian filter fit of mean of 2015
 gaussian filter fit of mean of 2016
 gaussian filter fit of mean of 2017
SDG 6.6.1 – Lake Guiers, Senegal

Show which pixels are sometime water or always water for each period, with a composite of a band as a gray-scale background.
SDG 11.3.1– Urbanisation in Dakar

Consumption rate = land consumption rate(area_t1 = urbanised_area_t1, area_t2 = urbanised_area_t2, y = 10) = 0.0009736552740383049
SDG 11.3.1(consumption rate, pop growth) = 0.18430412212447214
SDG 14.5 - Coastal Mangroves

Senegal Coastal Mangrove Change (2010 to 2016)
Increased mangroves (GREEN) and decreased mangroves (RED)
Southern Coast (left) - Net increase 28%, Northern Coast (right) – Net increase 11%
Algorithm uses the Global Mangrove Watch (GMW) mangrove extent mask with an NDVI threshold approach to identify mangrove change.
SDG 15.1.1 – Forest Area - Forest in Sankodou, Senegal

latitude = (13.1299, 13.2972)
longitude = (-15.3093, -15.1352)

Results from Data Cube (left)
# RED = data in the threshold range (significant land change), # BLACK = data outside the threshold range (no significant change), # WHITE = data outside the baseline mask (not dense vegetation) or clouds (no data)
SDG 15.3.1 – Degradation - Forest in Sankodou, latitude = (13.1299, 13.2972), longitude = (-15.3093, -15.1352)
Conclusion

- CSE and other stakeholders in Senegal are using the ARDC in various use cases: agriculture, water, forest, and urbanisation, in support of timely monitoring of SDGs.
- ARDC offers 17 years of time series satellite data.
- The results will help inform policy decisions to conserve
- Better data, better decisions and better lives
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