

COBECORE

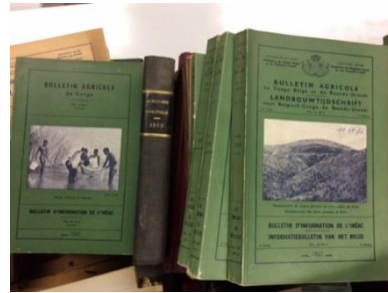
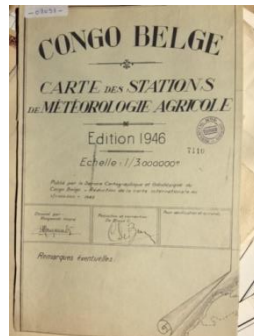
Congo basin eco-climatological data recovery and valorisation

DURATION
 1/01/2017 - 15/04/2020

BUDGET
 344 916 €

PROJECT DESCRIPTION

The “Congo basin eco-climatological data recovery and valorisation (COBECORE)” project brings together an interdisciplinary network of partners, including the main institutes curating eco-climatological legacy data of the central Congo Basin. COBECORE is a 4-year project that will establish baseline measurements necessary for long-term ecological and climatological research, valorizing as of yet unexplored heritage. To this end, COBECORE will develop a multi-faceted database, by making the static analog archives of the Institut National pour l’Etude Agronomique du Congo belge (INEAC) digitally accessible and extracting eco-physiological relevant plant traits from historic herbarium specimens. COBECORE complements previously transcribed climate records (e.g. at Yangambi and Luki) with data gathered throughout the basin and provides additional ecologically relevant (inventory) data. In order to speed up data processing, and provide public outreach, we will crowd-source transcription of the eco-climatological data and some of the recovered plant traits.



The African rainforest, is the second largest on Earth, covering ~630 million ha. The rainforest stores up to 66 Pg of carbon and is presently a persistent carbon sink (0.34 Pg C yr⁻¹). In addition, African rainforests support the forestry sector which contributes 3-6% of the gross domestic product (GDP) across the Congo Basin with most foreign export directed to Europe. As such, the African rainforest currently represents both a local and foreign (EU) economic driver. Yet, predictions regarding the future climate and the state of the forest remain uncertain in part due to a lack of legacy data which provides the necessary climatological and ecological context for current research in the Congo Basin (e.g. the BELSPO Congo Basin integrated monitoring for forest carbon mitigation and biodiversity).



COBECORE

Our understanding of forest ecosystem responses to climatic change relies heavily on consistent long-term observations to provide much needed baseline measurements. However, observing and measuring tropical plant species and the climatic conditions in which they reside is extremely demanding, particularly in the central Congo Basin. Consequently, established long-term observation programmes are rare. Similarly, few long term forest inventory plots exist for the central Congo Basin limiting the accuracy of biomass estimates and our understanding of forest structure and function. This lack of long-term (historical) eco-climatological data leaves the central Congo Basin spatially and temporally under-represented.

There is an urgent need for more long-term eco-climatological (baseline) measurements. Currently, large amounts of ecological and climatological data, approximately five decades (~1910 – 1960), exists as unexplored heritage, stored in various federal archives and collections. Within this context the archives of the Institut National d'Etudes Agronomique du Congo Belge (INEAC) at the State Archives of Belgium (ARA-AGR), the Royal Museum for Central Africa (RMCA) and the herbarium collections of the Botanic Garden Meise, with its large collection of tropical African plant specimens and complementary legacy data, are key. The inventory of these archives includes historic forestry, climatological, ecological, biodiversity data and aerial photographs, with great potential and relevance for current and future basic and applied forestry research in the central Congo Basin, particularly within the context of climate change.

Relevé à établir en 4 exemplaires, dont 3 à envoyer au Service Météorologique à Léopoldville 13 Sept 1952

CONGO BELGE Service Météorologique Observateur : (1) L. Verbeeck Poste n° 4444
Situé à Mankoto (TGF)
Mois de Juin 19 52 Territoire Mankoto

Observations climatologiques effectuées à 8 h. (temps civil)

DATES	Température sous abri			Psychrométrie		Eau tombée			Etat du sol (3)	Orages		Phénomènes divers (6)
	Maxi- ma M	Mini- ma m	Mo- yenne M+m 2	Thermomètre		mm.	Durée	Inten- sité (2)		Jours où l'on entend le tonnerre		
				sec	humide					Humidité relative	Local	
1	30.1	24.0	27.3	26	24.5	31			1.0	0	0	
2	29.7	21.5	25.6	24	24.0	24	5.2	2	1.5	1	1	
3	30.3	21.3	25.8	24	24.0	26	3.8	2	1.7	1	1	
4	28.2	21.3	24.7	24	24.0	24	4.8	0	1.0	1	1	
5	28.2	21.3	24.7	24	24.0	24	4.8	0	1.0	1	1	

COBECORE will generate spatially explicit historical climate records for the Congo basin, and therefore generate added value by assisting in the interpretation of results from e.g. the HERBAXYLAREDD project (BELSPO BR/143/A3/HERBAXYLAREDD) which links plant data from the Botanic Garden Meise Herbarium with wood samples of the Xylarium of the RMCA to foster a better understanding of patterns and processes in the Congo Basin rainforest. Accurate climatological data are also key in assessing the spatially explicit climate sensitivity of tropical tree species as explored in the Jungle Rhythms project (data collection supported by COBIMFO; BELSPO project SD/AR/01A). The analysis of geo-referenced historical aerial pictures using textural and land-use land-cover change analysis will provide information on the temporal stability of the canopy structure within the permanent sampling plots. We will provide specific leaf area, stomatal density parameters and leaf nitrogen and carbon content (traits) which are important parameters in ecosystem models and indicators of adaptation to climate change in their own right.

In addition we will cross-link this data with leaf level data collected of herbarium specimen at the Botanic Garden Meise during the COBIMFO field campaign and previous digitization efforts in the BIOSPHERETRAITS project. Finally, COBECORE will ensure proper data integration of all this data into a database structure and dissemination through a web portal and outreach towards the scientific community, the public and the private sector.

CONTACT INFORMATION

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LINKS

<http://cobecore.org>