

Working with Legacy Data and Remote Sensing in Sudan Tohamy Abulgasim



Sudan, one of Africa's largest countries, is rich in historical and cultural heritage, yet much of its archaeological record remains undocumented. Despite numerous excavations across the region, there is a significant gap in the systematic documentation and surveying of many areas. This lack of comprehensive data has left vast regions of Sudan's archaeological landscape unexplored and under-represented.

Remote Sensing data

ARCADIA

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Legacy data

Remote sensing technologies, when integrated with traditional excavation methods, offer a powerful toolset for overcoming the challenges above. By applying these technologies, we can enhance the identification, mapping, and documentation of archaeological sites, filling the gaps left by previous surveys and creating detailed and accessible databases for Sudan.

We started remote sensing in Kordofan and Darfur region first. The area is very rich in archaeology that has never been excavated or documented. MAEASaM has documented thousands of sites to date, started by MAEASaM researchers Ed Burnett and Elias Michaut.



Cairns

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maeasam.org or sign up for our newsletter using this QR code:

Samples of Sites

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Egypt Saudi Arabia Libva -Bir Tawi SudanIsland Red Sea Northerr River Nil North Darfur Sudar Khartour Kassala Chad Sh Eritrea North Kordofar Aj Jazirah Gedaref West Darfur Sennar Central Darfur West Kordofan South Kordofan Blue Nile Ethiopia East Darfur South Darfur Abyei PCA Kafia King Central African Rep. S. Sudar Legacy_Data 20 40 60 80 km 0 Remote_Sensing

To build a robust legacy data repository for Sudan, a strategic and phased approach is essential. Starting small, by selecting a specific area or region, allows for a focused and thorough mapping of sites. This methodology ensures accuracy and comprehensiveness in documentation, forming a solid foundation upon which further data can be added as the project expands to cover larger areas.

Over 1,000 sites were documented by Tohamy Abulgasim and colleague Ed Burnett. Some were documented along the Nile taken from D. Edwards and A. Osman's survey in the Mahas area, and some from I. Musa's survey in Darfur.



Introduction The 1:250,000 series of maps of what lebel (Mountain or was then referred to as the "Anglo-Egyptian Sudan" were mostly printed in Kordofan and Darfur, for instance, contain a wide variety of points of Temporary village he early 20th century, based primarily archaeological interest, as can be seen Deserted village. in the key on the right. This poster outlines how much can be uncovered simply by surveying Google Earth and Bing imagery, despite the many s from the 1900s and 1910s Chief's court. C.C. hese maps are inherently problem Rest-house Bing imagery, due to their production as part of the colonial administration. However, their Fort. erage of the entire country means Cemeter they have the potential to expand on future, we hope to work with our anding of areas of Sudan received less research Sudanese partners at NCAM to further investigate some of these location Qubba (Domed tomb). orically, in part due to the biases of through ground-truthing, telling us more uses inherited from this era, about these fascinating but lesse hwhile to purs praves -54C ast to the problems with data kandi WS. 54 ngoing digitisation Northwest Kordo ILEI 54G Old Turkish For

End	closure	es				E BEL COLORIS	N hist Kordor	Right: Over AEASaM has torical maps f	erview of how s worked with or Darfur and by Ed Burnett	V h	y, such as re (found e as seen fin of points e, in part 79%) we we he ide ear to have we be ide for the ide ar to have mosque (erification sites from Verited incertain weed only beenfalle Reverse	I status of potential n historical maps, Darfur a mage of the status of potential a mistorical maps, b mistorical maps,	A statistical statistics of the regional scatter of th	efful result of surveying historical maps to unsystematic identification, during es, of additional sites not noted on the attempting to survey for wells listed on tha aseries of round stone wall features nent (bottom left of map) and many efft of surveying points of interest d somewhat of a on as a whole. As left, at least 217 sen identified, and is identified, and is identified areas future, however, at for usefulness	PS C	Graves Contract UEL	Additionally, where multiple imag for instance, the disappearance of between 2005 and 2014 (visible in the map 54G below) was seemingly ca form of mning activity, possibly loos specificity of targeting.	es exist, the n be evaluated, if some turnuli e inset maps of used by some ting due to the
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B	√ Jx C	p	E	F	G	н	1	J	К	1	1	I his tab captures si	AFASaM ID generated for a	and relevant site sul	The ID will connect the information	on together		
		v							<u>.</u>		3	NOTE 2: If you are unfamiliar w	vith some of the fields listed	below, please visit the Site Reso	urce Model documentation https:/	//docs.google.com/spreadshee	ts/d/1sGUdYEyjjFVdNs5w8v3	f40xwsOA-d5 /e
Branches Scope note		E42 identifier E42 identifier	E26 Physical Feature	E53 Place	E17 Type Assignment	E53 P E55 Type	Place E7 Activity	ET Advity	E55 Type	E27 Silo	4	NOTE 3: Consult the Site The	saurus: https://docs.google.co	om/spreadsheets/d/1tMqmrYkZh	HPyb62EKqODHg2RdVKgeYITTIG	L9OgAVKsM/edit#gid=87480	032 for fields containing 'Containing 'Containing'	rolled vocabularie
		This class comprises strings or codes	that are physically attached in an integral way to particular	space, in particular on the surface of the earth, in the pure sense of	of classifying items of whatever kind. Such items include objects,	denoted by terms from thesauri and controlled vocabularies used to characterize and classifications	4		denoted by terms from thesauri and controlled vocabularies used to characterize and closed to	d This class contained	5	NOTE 3: If there is more than	one name. For example prin	many versus alternative, for a site	, please use the same ID but add t	he different details on a separ	ate row below the initial row	
	6	assigned to instances of E1 CRM Entity in order to identify them uniquely and permanently within the context of one or more organisations.	prysical objects. Ty Instances of E26 Physical Feature share many of the attributes of instances of E10	physics: independent from temporal phenomena and matter. The instances of E53 Place are interest.	specimens, people, actions and concepts.	CRM classes. Instances of E55 Type represent concerts in	70		CRM classes. Instances of E55 Typ represent concerts in	the class comprises pieces of land sea floor. In contrast to the purely accounting	6	NOTE 4: Some entries such as	Name Value and Associated	I ID name may be repeated acros	ss the different tabs.	on a separ		
		Such codes are often known as inventory numbers, registration codes, etc. and are	Physical Object. They may have a one-, two- or three-	determined by reference to the positio of "immobile" objects	on documentation of the context of classification acts in cases where the	contrast to instances of E41 Appellation which are used to name	This class comprises actions intentionally carried out by instances	This class comprises actions intentionally carried out by instances	contrast to instances of E41 Appellati which are used to name instances of	notion of E53 Place, this class if describes constellations of matter of	7	NOTE 5: If you have any editorial	comments please include the	a notes in the 'Editorial Comment'	tab This will highlight to the data and	litor if some aspects of the data	are uncertain if there are any art	sing fields on addisi
		typically composed of alphanumeric sequences. The class E42 Identifier is not normally used for monitorial and the second seco	dimensional geometric extent, but there are no natural borders that senarate them complete in the senarate	re such as buildings, cities, mountains, rivers, or dedicated geodetic marks. A Place can be determined by	 value of A the classification depends on the personal opinion of the classification 	instances of CRM classes. E55 Type is the CRM's interface to domain exercise activities	of E39 Actor that result in changes of state in the cultural, social, or obvising surfaces of surfaces	of E39 Actor that result in changes of state in the cultural, social, or obviousl sustained for a social of	CRM classes. E55 Type is the CRM's interface to domain scenario	the surface of the Earth or other celestial body, which can be represented by obtained								and news of additic
		identifiers used for automated processing unless these are also used by human agent.	way from the carrier objects. For example, a doorway is a	e, a frame of reference and a location with respect to this frame. It may be	the date that the classification was made. This class also	thesauri. These can be represented in the CRM as subclasses of E55	d This notion includes complex, composite and long-lasting actions	This notion includes complex, composite and long-lasting actions	thesauri. These can be represented in the CRM as subclasses of ESS	d and maps.	8	MATAG		Name		and Ide		
		The class E42 Identifier is not normally used for machine-generated identifiers used for	for feature but the door itself, being attached by hinges, is not.	by identified by one or more instances of E44 Place	encompasses the notion of "determination," i.e. the systematic	Type, forming hierarchies of terms, i.e. instances of E55 Type linked	 such as the building of a settlement or a war, as well as simple, short- 	such as the building of a settlement or a war, as well as simple, short-	Type, forming hierarchies of terms, i instances of E55 Type linked	i.e. Instances of E27 Site are composed relatively immobile material items a	9	MAEASaM ID	Name value	Name type	Associated ID name	Associated ID value	Site type summary	Origin of
		automated processing unless these are also used by human agent.	Instances of E26 Physical Feature can be features in a narrower sense, such as	e Appellation. It is sometimes argued that instances	and molecular s identification of a specimen in biology	via P127 has broader term (has narrower term). Such hierarchies	lived actions such as the opening of a door.	lived actions such as the opening of a door.	a via P127 has broader term (has narrower term). Such hierarchies ma	features in a particular ay configuration at a particular location			. June faide			and the stated in value	Jee ope summary	Criginol
First Tier Nodes Nodes	Language 1:Eng.	MAEASaM ID MAEASaM ID (English)	Evidence	Evidence shape	Interpretation	Site Desc Interpretation certainty	cription Ground Instead	Land use land cover	Climatic zone	Relationship to other site								Site sources are by
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MAEASaM Scope Note (Eng)		Unique ID give to each resource entered.	The physical features that can be seen on satelitie/arial/multispectral or hyperspectral images that can be used to identify an area on the landscape as possibly being archaeological in origins.	a What is the overall geometric shape (such as circular rectangular, oval etc of the site.	Based on the evidence that is visible e on the imagery, wat interpretation car (c) be made of the nature or function of the visible features.	e an Based on the evidence visible on the imagery, how certain are you of you interpretation of the physical feature.	Has the existence of this site or its interpretation been verified by ground observations or surveys.	What is the land use or land cover tha is present in the area, at the time of recording, in which the site is located	ft What is the climatic zone in which th d. site is located	Can this site be linked to any othe the know site located within the records a national authority	11	The MAEASaM Internal ID used to refer to this resource	A name value refers to the unique name of the site	Alternative. An entry can have multiple name values with different name types	Museum, Researcher, Map reference, etc.	researcher or museum for the site (i.e., a site number could be 1732 CA 34 or 0005B	site, settlement, historical building, monument, cultural landscape or complex site	and/or journal artic information is relat Information Resou database.
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To ex	plore mo	ore of the pr	oject,						Infor	mation corr	ect a	as at August 2024.						