

FINAL PRESENTATION

Project: SudMig

IP SDI SERVICES IMPLEMENTATION
WT2023/24

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Recap: Topic and context

"Sudan: monitoring migrant movements related to the 2023 conflict"



Source: [International Organization for Migration](https://www.iom.int/news-global/16-october-2023/sudan-faces-worlds-largest-internal-displacement-crisis)

Questions of interest:

- Where are the migration hot spots in the country?
- Where do people internally flee?
- How are the numbers of IDPs developing?

Name	Nadia	Malik	Kathrin
Organization	UNHCR*	UNOCHA**	UNDP***
Role	Field Coordinator	Humanitarian Analyst	Data Specialist
Main task	Coordination of on-the-ground UNHCR activities	Humanitarian data analysis and resource allocation	Analyzing development data and trends
Location	Sudan	Genf	New York
Needs and goals	<ul style="list-style-type: none">- Fast information on current refugee movements- Monitoring camp capacities- Coordination with other UN agencies and NGOs	<ul style="list-style-type: none">- Refugee information for humanitarian needs- Analysis of resource allocations and shortages- Derive security information	<ul style="list-style-type: none">- Understanding of socioeconomic impacts of refugee movements- Identification of development projects in affected areas- Collaboration with other UN agencies and government entities

*UNHCR = United Nations High Commissioner for Refugees

**UNOCHA = United Nations Office for the Coordinator of Humanitarian Affairs

***UNDP = United Nations Development Programme



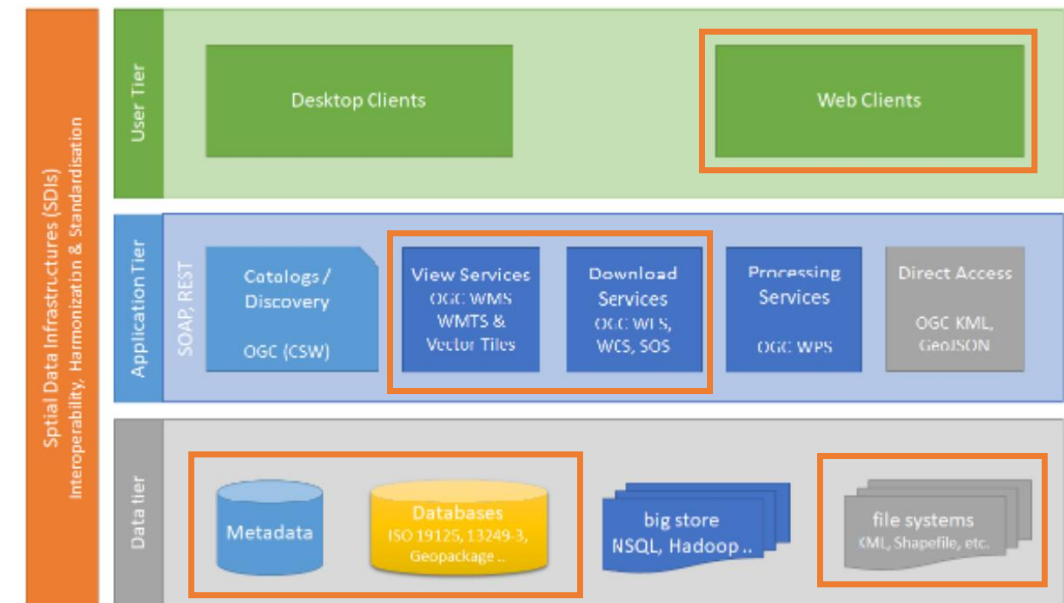
SDI Approach & Methods

Technology

- **Data storage:** PostGIS database (PostgreSQL with spatial extension)
- **Web Server:** ArcGIS Server for publishing View and Download services (OGC WFS & WMS, and ArcGIS Feature and Map Image Layers)
- **Geospatial Catalog** for metadata (Geonetwork)
- **Desktop GIS:** Data integration (Geocoding)
- **Web GIS Software:** ArcGIS Insights

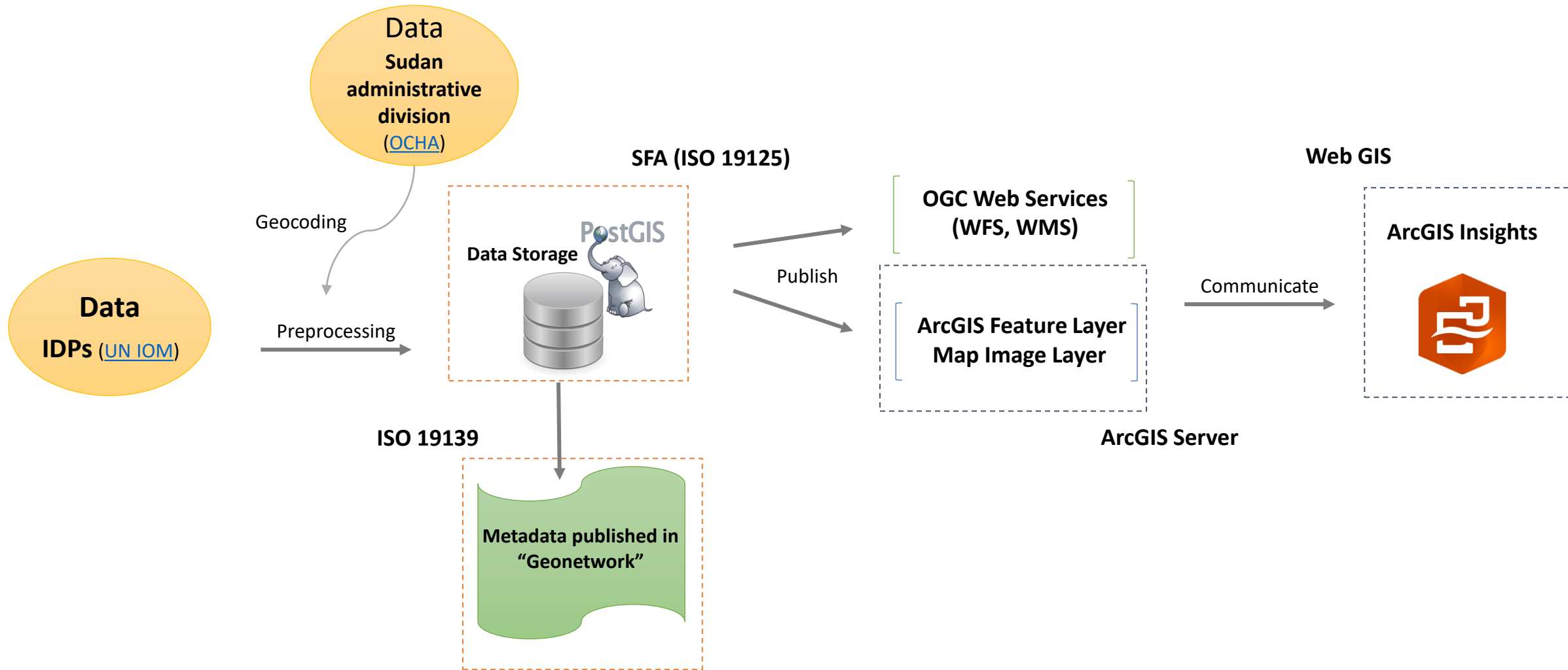
Policies & institutional arrangements

- **Standards**
 - OGC-compliant Web Services
 - Simple Feature Access (ISO 19125) data storage (“geometry” data type in PostgreSQL)
 - ISO-compliant metadata (ISO 19139)
- **Data access**
 - Open Data, Public Datasets





SDI Architecture





Results

PostGIS Database: Snapshot of the table of our statistical dataset

Query		Query History									
1		SELECT * FROM sudmig_monthly_idps_centri_ori_dis_final_forpublishing									
Data output		Messages									
	objectid_12 integer	adm1_en character varying (50)	adm1_pcode character varying (50)	date timestamp without time zone	state_of_displacement character varying (8000)	state_of_origin character varying (8000)	idps integer	lat_dis numeric (10,7)	lon_dis numeric (10,7)	gdb_ge bytea	
17	17	Central Darfur	SD06	2023-05-05 00:00:00	Central Darfur	Central Darfur	1780	12.4029112	23.3644129	[null]	
18	18	Aj Jazirah	SD15	2023-05-05 00:00:00	Aj Jazirah	Aj Jazirah	350	14.5894849	33.2736205	[null]	
19	19	Aj Jazirah	SD15	2023-06-21 00:00:00	Aj Jazirah	Aj Jazirah	425	14.5894849	33.2736205	[null]	
20	20	Central Darfur	SD06	2023-06-21 00:00:00	Aj Jazirah	Central Darfur	[null]	14.5894849	33.2736205	[null]	
21	21	Khartoum	SD01	2023-06-21 00:00:00	Aj Jazirah	Khartoum	125815	14.5894849	33.2736205	[null]	
22	22	North Darfur	SD02	2023-06-21 00:00:00	Aj Jazirah	North Darfur	[null]	14.5894849	33.2736205	[null]	
23	23	North Kordofan	SD13	2023-06-21 00:00:00	Aj Jazirah	North Kordofan	[null]	14.5894849	33.2736205	[null]	
24	24	South Darfur	SD03	2023-06-21 00:00:00	Aj Jazirah	South Darfur	[null]	14.5894849	33.2736205	[null]	
25	25	West Darfur	SD04	2023-06-21 00:00:00	Aj Jazirah	West Darfur	[null]	14.5894849	33.2736205	[null]	
26	26	Aj Jazirah	SD15	2023-06-21 00:00:00	Blue Nile	Aj Jazirah	[null]	11.2974548	34.1276224	[null]	
27	27	Central Darfur	SD06	2023-06-21 00:00:00	Blue Nile	Central Darfur	[null]	11.2974548	34.1276224	[null]	
28	28	Khartoum	SD01	2023-06-21 00:00:00	Blue Nile	Khartoum	16862	11.2974548	34.1276224	[null]	
29	29	North Darfur	SD02	2023-06-21 00:00:00	Blue Nile	North Darfur	[null]	11.2974548	34.1276224	[null]	



Results

Metadata: Published on Geonetwork and contained in the metadata of the Web Services

PLUS Z_GIS Geonetwork Search Map Sign in

Back to search Download Display mode

SudMig_Monthly_IDPs_2023

This dataset includes statistics of Internally Displaced Persons (IDPs) for the states of Sudan between May and November 2023 who were displaced due to the ongoing conflict. The data were created using the "Sudan Displacement Situation - IDPs [IOM DTM]" (<https://data.humdata.org/dataset/sudan-displacement-situation-idps-iom-dtm>) dataset provided by International Organization for Migration (IOM) which includes statistical information on IDPs, including their Origin and Displacement State. The data were geocoded using the "Sudan - Subnational Administrative Boundaries" (<https://data.humdata.org/dataset/cod-ab-sdn>) dataset provided by the Information Management Working Group (IMWG), OCHA.

Discover data










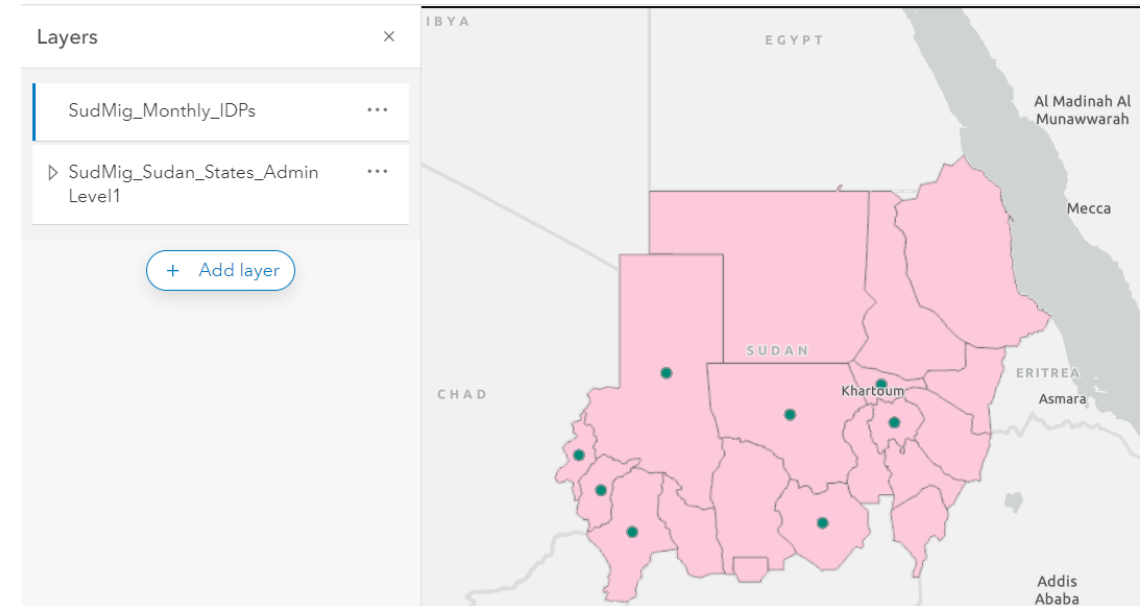
[Geonetwork](#)



Results

ArcGIS Server/Geoportal: Published Web Services

 SudMig_Monthly_IDPs	Feature Layer
 SudMig_Monthly_IDPs	WFS
 SudMig_Monthly_IDPs	Map Image Layer
 SudMig_Sudan_States_AdminLevel1	Feature Layer
 SudMig_Sudan_States_AdminLevel1	Map Image Layer
 SudMig_Sudan_States_AdminLevel1	WMS
 SudMig_Sudan_States_AdminLevel1	WFS

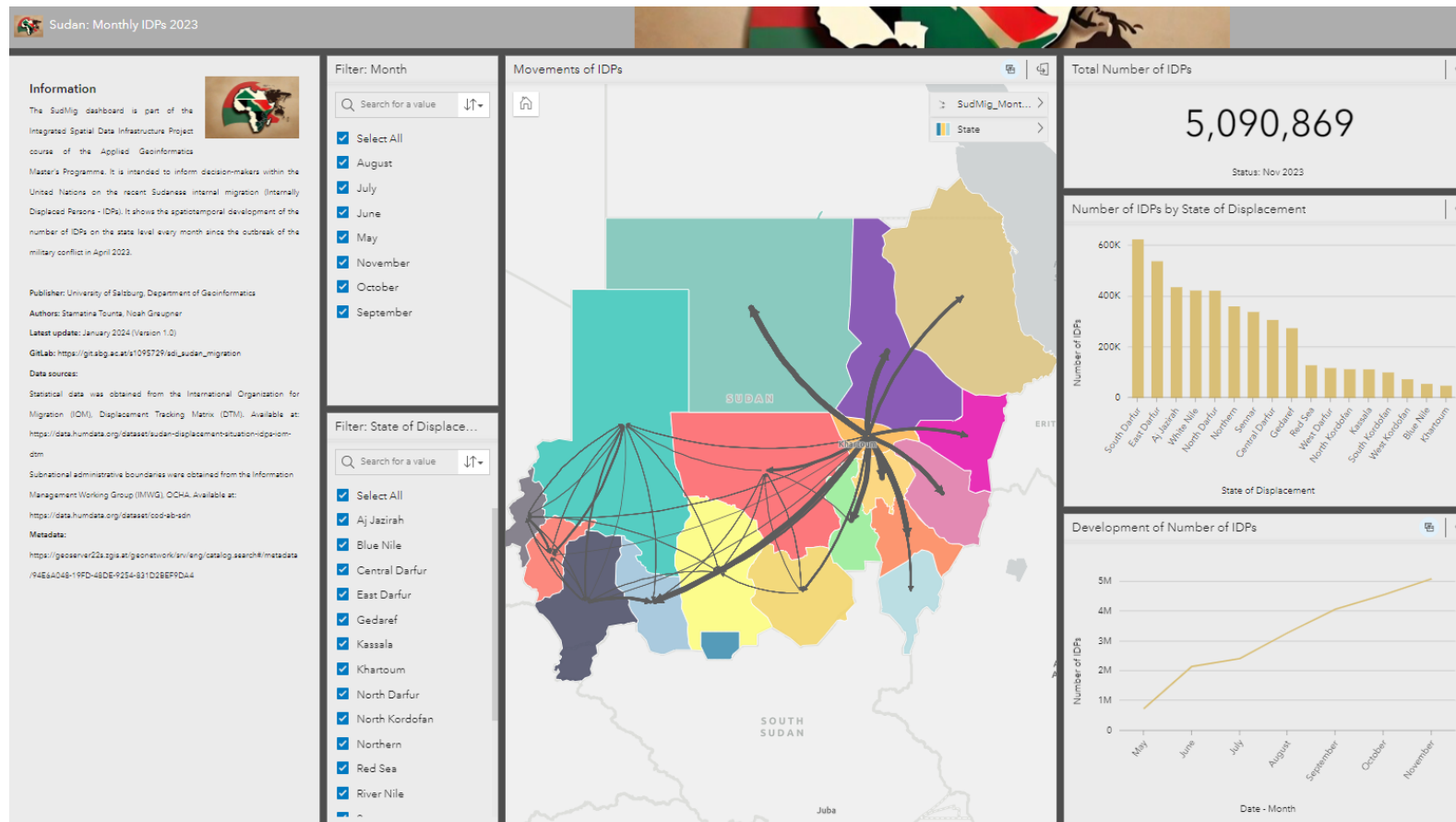


Adding the WFS statistical layer and WMS Admin L1 layer in a web map



Results

ArcGIS Insights: final dashboard



<https://geoportal22s.zgis.at/portal/apps/insights/#/edit/94ecaf65cf844b3b8994069b97a63b90>



Discussion

Challenges

- Data preparation
 - o Data structure
- Visualization capabilities of ArcGIS Insights
 - o e.g. people fleeing within the same state

Take aways

- Working across platforms
- DBMS
- ArcGIS Insights
- Purpose-fulfilling work process
- Project-based work (management)