Importance of GIS Repositories

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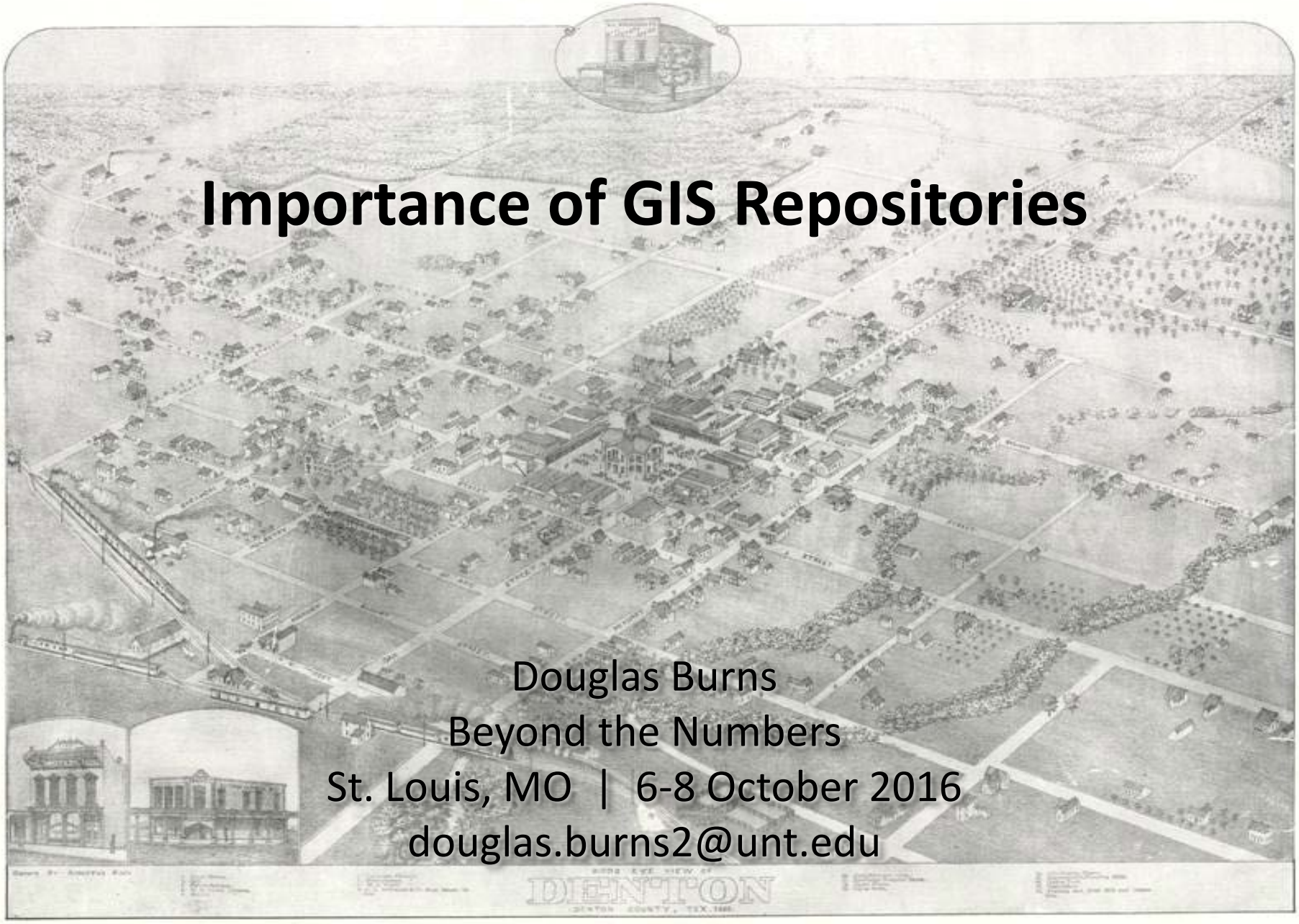
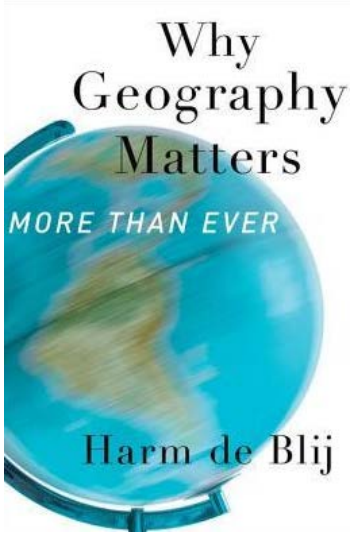


CONVERSATION

Importance of GIS

- Scarcity
- *Why Geography Matters… More Than Ever*, Harm de Blij
- Data tied to place → informs
- Location Analytics (Esri)
  - Competitive edge
  - Increasing the margins
- Popularization of maps (ca. 2000s)

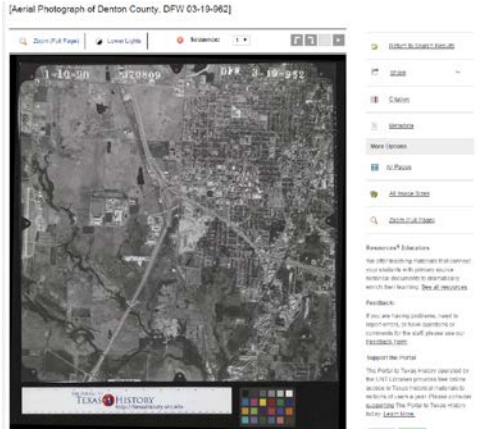


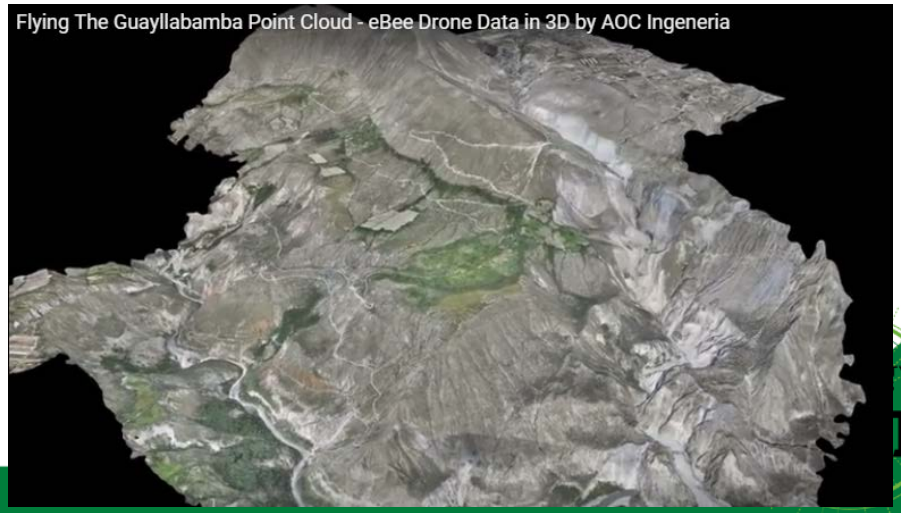
Importance of GIS Repositories

- Problem:
  - Ephemeral nature
  - Historical “backlog”
    - Analog?
- Educational / research value
- Government accountability
  - Office of Science and Technology Policy (2013)
- Democratized access for policy

Recent Advances

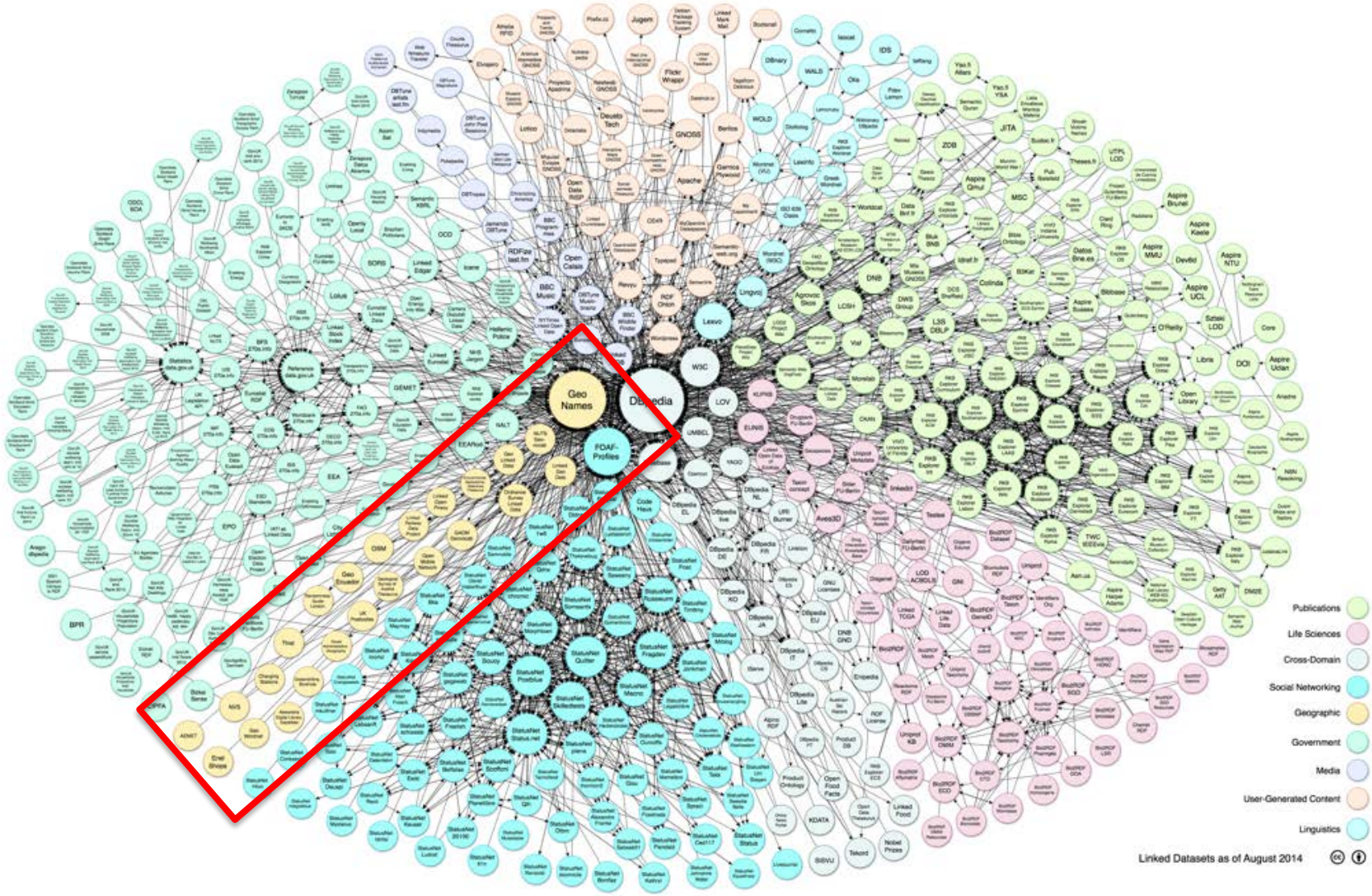
- Fiber-optic networks improve speed
- Removal of Selective Availability for GPS
- LiDAR and orthoimagery
  - Size in GBs*
  - Unmanned Aerial Vehicles
- REST + Server
  - Real-time / geofence
- Mobile devices





Availability & Maintenance

Patchwork… Linked…?



Availability & Maintenance

- Patchwork… Linked… ~2%
- Is the data proprietary?
- Is the data timely?
- How often is the data updated?
  - Server vs. direct download
- Compatibility / format?*
- How is the data accessed?
- Is the data the right scale?
- Standards?

Availability & Maintenance

- GeoBlacklight (EarthWorks)
- DSpace
- Local: proprietary or in-house
- Esri:
  - Open Data
  - ArcGIS Online
  - Server
  - Portal*

ArcGIS Open Data

Examples: Government

- Census
  → Economic Census
- Federal Reserve Bank data
- Data.gov
- World Bank data *(example later)*
- TNRIS (plus other states)
- The National Map (USGS)
- CIA World Fact Book†
- United Nations†

Examples: Industry

- ReferenceUSA
- PolicyMap*
- World Resources Institute
- ProQuest*
- ThomsonONE*
- International Monetary Fund (IMF)
- DataPlanet
- SocialExplorer*
- OECD Statistics*

→ URISA GISCorps and OpenStreetMap

Examples: Academia

- EarthWorks
- PLEIADES
- Portal to Texas History / Digital Library
- MIT*
- Harvard*
- Texas A&M

- University of Oregon
- University of Wisconsin
- University of Texas – Austin

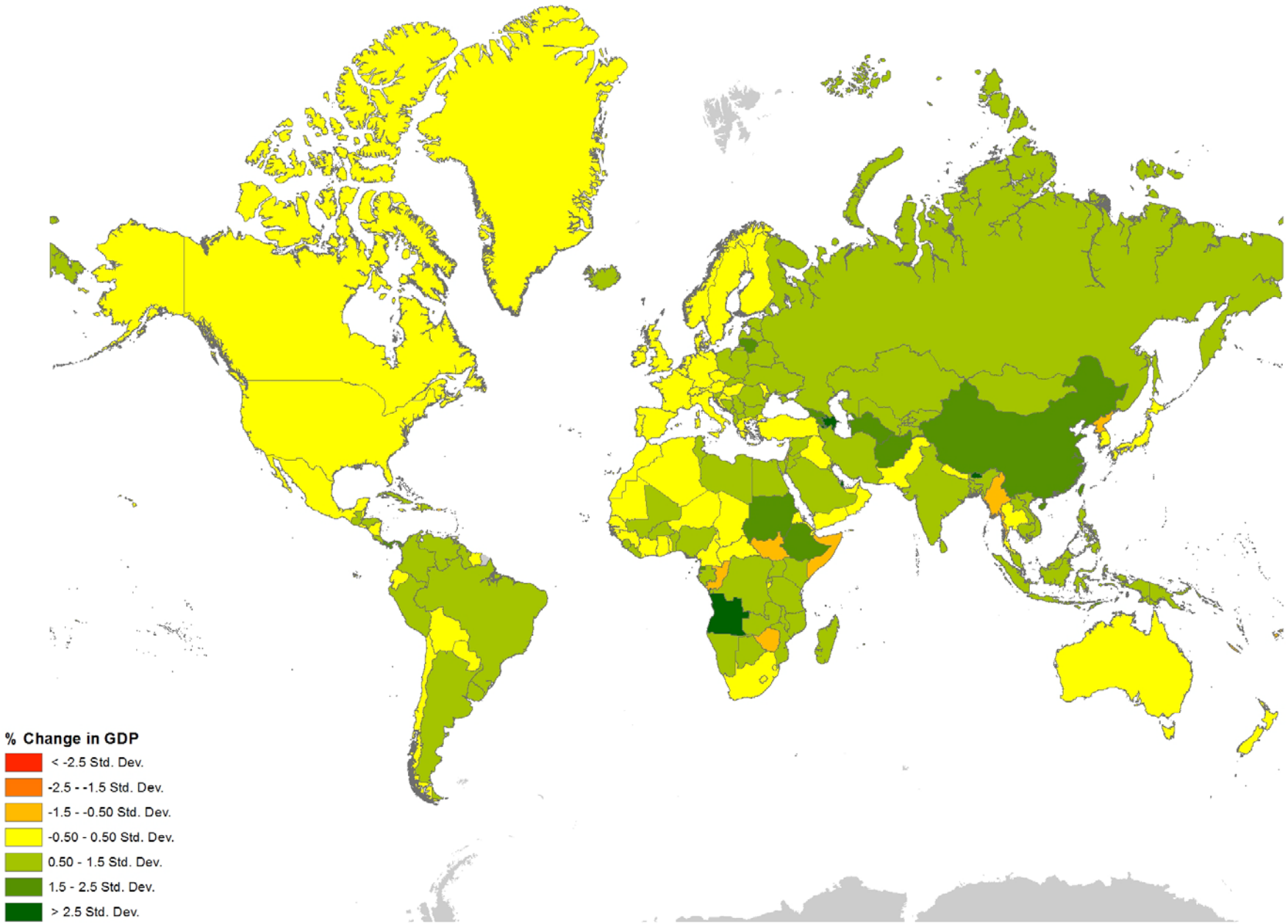
Practical Example

- World Bank data:
  - Represents annual % growth GDP
  - Represents 2007 – 2015
  - Natively in tabular format
  - "converted" into GIS-friendly format
  - *There are many metrics – this is just one*
  - You can see changes in geo-context:
    - Ebola in West Africa (Liberia)
    - Crimea Annexation: Ukraine & Russia
    - Post-Gaddafi/Arab Spring Libya
    - Turmoil in South Sudan

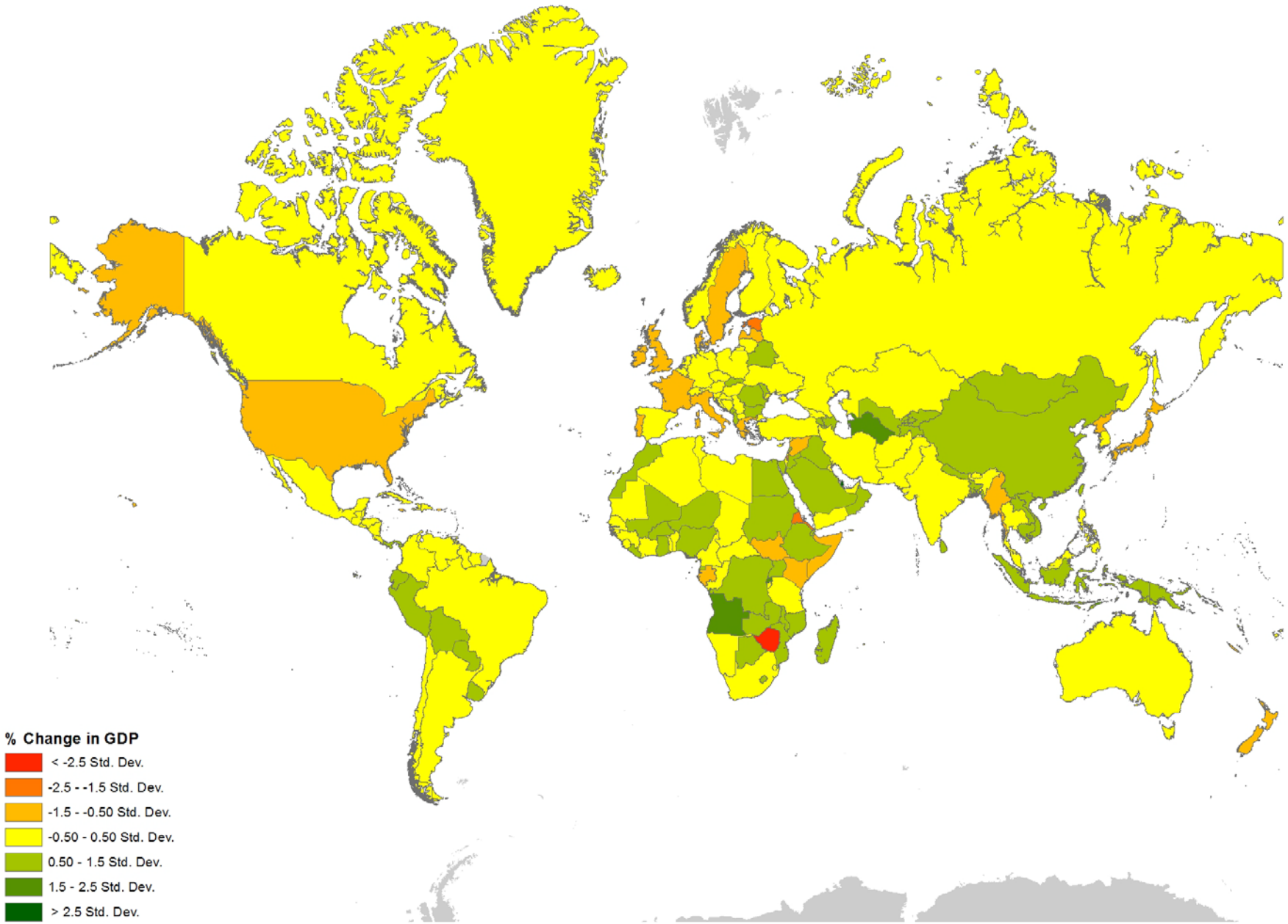
Original Data

Name	CountryCode	IndicatorN	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
Aruba	ABW	GDP growth (annual %)																							
Andorra	AND	GDP growth (annual %)												4.65	8.15	7.79	5.62	0.54	3.3	2.84	1.46	0.04	2.21	-0.13	1.25
Afghanistan	AFG	GDP growth (annual %)																							
Angola	AGO	GDP growth (annual %)																							
Albania	ALB	GDP growth (annual %)																						5.75	2.95
Arab World	ARB	GDP growth (annual %)																	12.9	8.65	1.91	10.59	10.07	3.98	-3.11
United Arab Emirates	ARE	GDP growth (annual %)																	16.53	21.44	-1.59	20.92	23.87	4.66	-6.72
Argentina	ARG	GDP growth (annual		5.43	-0.85	-5.31	10.13	10.57	-0.66	3.19	4.82	9.68	3.05	5.66	1.63	2.81	5.53	-0.03	-2.02	6.93	-4.51	10.22	4.15	-5.69	-4.96
Armenia	ARM	GDP growth (annual %)																							
American Samoa	ASM	GDP growth (annual %)																							
Antigua and Barbuda	ATG	GDP growth (annual %)																			4.18	7.34	8.6	4.08	0.17
Australia	AUS	GDP growth (annual		2.48	1.33	6.21	6.98	5.98	2.37	6.3	5.09	7.05	7.17	4.01	3.91	2.6	4.1	1.34	2.59	3.61	0.9	4.05	3.05	3.36	3.32
Austria	AUT	GDP growth (annual		5.54	2.65	4.14	6.12	3.48	5.64	3.01	4.47	6.28	5.55	5.11	6.21	4.89	3.94	-0.36	4.58	5.08	-0.21	5.36	1.73	-0.14	2.01
Azerbaijan	AZE	GDP growth (annual %)																							
Burundi	BDI	GDP growth (annual		-13.75	9.06	4.14	6.27	3.97	4.61	13.82	-0.3	-1.46	21.33	2.75	-6.4	6.89	-0.73	0.7	7.94	11.47	-0.94	1.66	0.99	12.16	-1.05
Belgium	BEL	GDP growth (annual		4.98	5.21	4.35	6.96	3.56	3.16	3.87	4.19	6.63	5.96	3.99	5.3	6.38	4.57	-1.97	5.65	0.63	2.84	2.34	4.44	-0.28	0.59
Benin	BEN	GDP growth (annual		3.14	-3.43	4.73	6.65	5.29	3.58	1.08	3.84	2.88	2.1	-1.5	6.43	3.71	3.34	-4.9	0.88	4.98	1.26	6.54	6.78	9.95	2.24
Burkina Faso	BFA	GDP growth (annual		4.04	6.13	-1.27	2.28	3.76	0.54	8.82	3.07	2.03	0.12	1.41	2.31	0.45	8.29	3	8.53	0.37	4.61	3.66	0.8	4.26	9.56
Bangladesh	BGD	GDP growth (annual		6.06	5.45	-0.46	10.95	1.61	2.57	-1.88	9.49	1.22	5.62	-5.48	-13.97	3.33	9.59	-4.09	5.66	2.67	7.07	4.8	0.82	7.23	2.13
Bulgaria	BGR	GDP growth (annual %)																						4.9	2.33
Bahrain	BHR	GDP growth (annual %)																						-5.32	-7.56
Bahamas, The	BHS	GDP growth (annual		10.67	10.45	10.52	10.5	10.43	9.07	9.6	8.42	8.98	-5.65	1.63	-3.5	7.57	-16.75	-14.8	5.19	9.15	14.18	26.14	6.5	-9.23	6.7
Bosnia and Herzegovina	BIH	GDP growth (annual %)																							
Belarus	BLR	GDP growth (annual %)																							
Belize	BLZ	GDP growth (annual		4.89	4.89	4.96	5	4.93	4.77	4.91	7.37	5.11	4.81	3.96	10.22	5.35	13.56	3.59	-0.03	6.5	7.92	7.52	15.17	1.29	-0.28
Bermuda	BMU	GDP growth (annual		4.68	4.47	1.07	11.11	4.76	14.36	13.28	2.11	3.44	6.31	3.44	1.81	1.48	0.88	3.77	8.94	5.9	1.45	2.15	7.94	2.38	-5.29
Bolivia	BOL	GDP growth (annual		2.08	5.57	6.42	4.79	5.63	6.5	6.91	-12.17	3.1	-0.49	5.06	7.97	5.74	2.94	7.31	4.61	4.97	2.05	0.13	-1.37	0.28	-3.94
Brazil	BRA	GDP growth (annual		10.28	5.22	0.87	3.49	3.05	4.15	4.92	11.43	9.74	8.77	11.3	12.05	13.98	9.04	5.21	9.79	4.61	3.23	6.77	9.11	-4.39	0.58
Barbados	BRB	GDP growth (annual %)																						-1.98	-4.8
Brunei Darussalam	BRN	GDP growth (annual %)																0.36	20.16	10.92	6.78	22.56	-7	-19.83	3.96
Bhutan	BTN	GDP growth (annual %)																						13.91	3.41
Botswana	BWA	GDP growth (annual		6.34	6.67	5.92	6.83	5.81	6.34	5.92	10.57	15.12	17.12	25.82	26.36	21.3	8.8	8.45	10.65	12.01	14.33	12.15	11.99	9.06	12.17
Central African Republic	CAF	GDP growth (annual		4.95	-3.71	-0.71	2.08	0.95	0.64	4.68	1.4	7.09	2.33	1.13	0	1.89	6.34	0.41	5.43	3.81	1.21	-2.47	-4.48	-1.54	7.72
Canada	CAN	GDP growth (annual		3.16	7.12	5.18	6.7	6.64	6.58	2.92	5.3	5.26	3.26	4.12	5.45	6.96	3.69	1.82	5.2	3.46	3.95	3.8	2.16	3.5	-3.2
Central Europe and the Baltics	CEB	GDP growth (annual %)																							
Switzerland	CHE	GDP growth (annual %)																						1.6	-1.31
Channel Islands	CHI	GDP growth (annual %)																							
Chile	CHL	GDP growth (annual		4.05	5.19	6.12	2.67	0.42	10	3.64	3.75	3.47	2.12	9.02	-0.82	-4.94	2.49	-11.36	3.41	8.7	7.46	8.68	8.15	4.74	-10.32
China	CHN	GDP growth (annual		-27.3	-5.6	10.2	18.3	17	10.7	-5.7	-4.1	16.9	19.4	7	3.8	7.9	2.3	8.7	-1.6	7.6	11.88	7.6	7.81	5.17	9.02
Cote d'Ivoire	CIV	GDP growth (annual		9.93	1.23	14.49	17.61	-3.11	11.58	4.6	12.55	9.54	10.38	9.46	4.24	5.94	4.33	8.25	12.92	7.31	10.91	2.39	-10.96	3.5	0.2

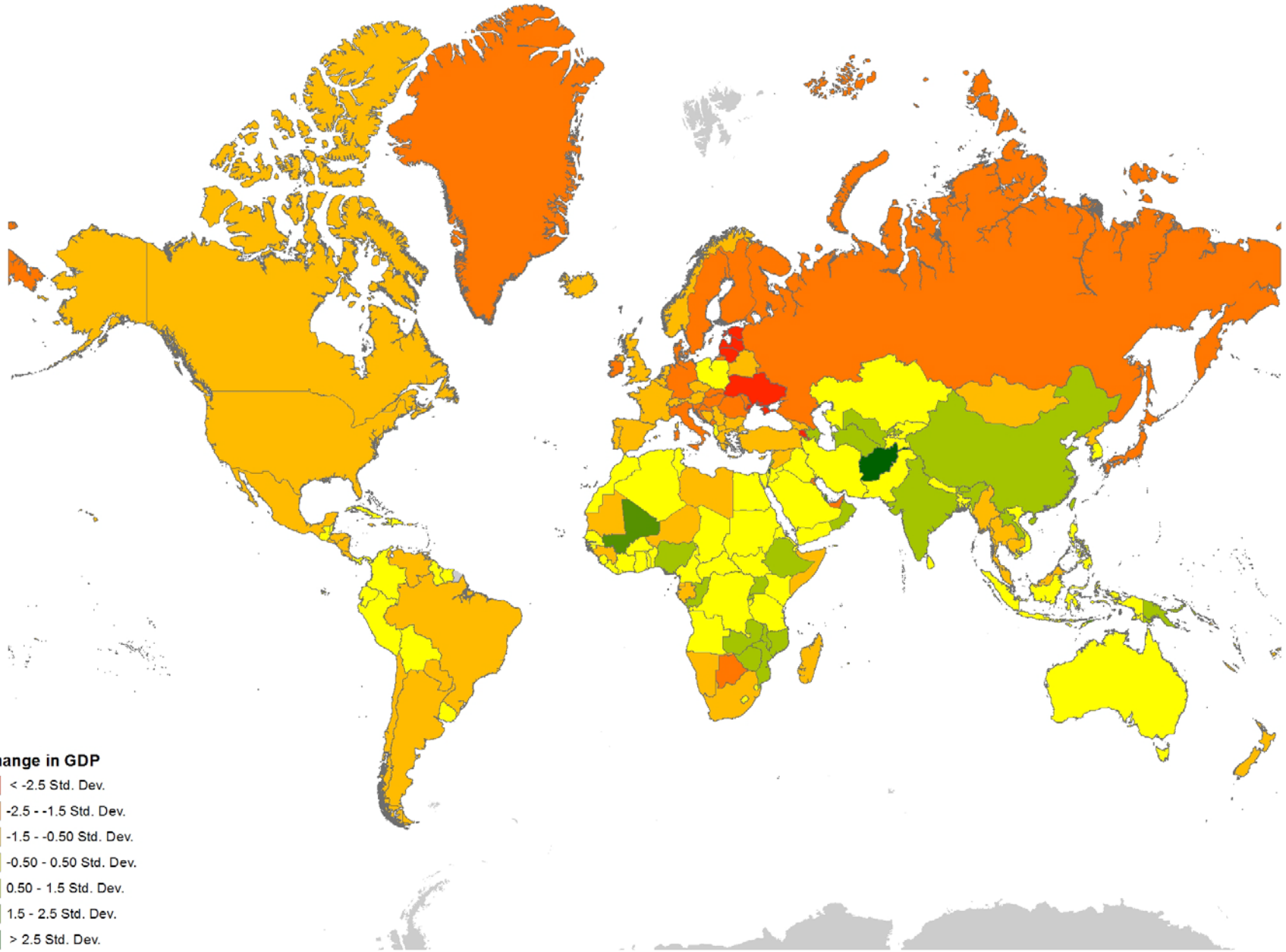
ANNUAL PERCENT CHANGE GDP: 2007



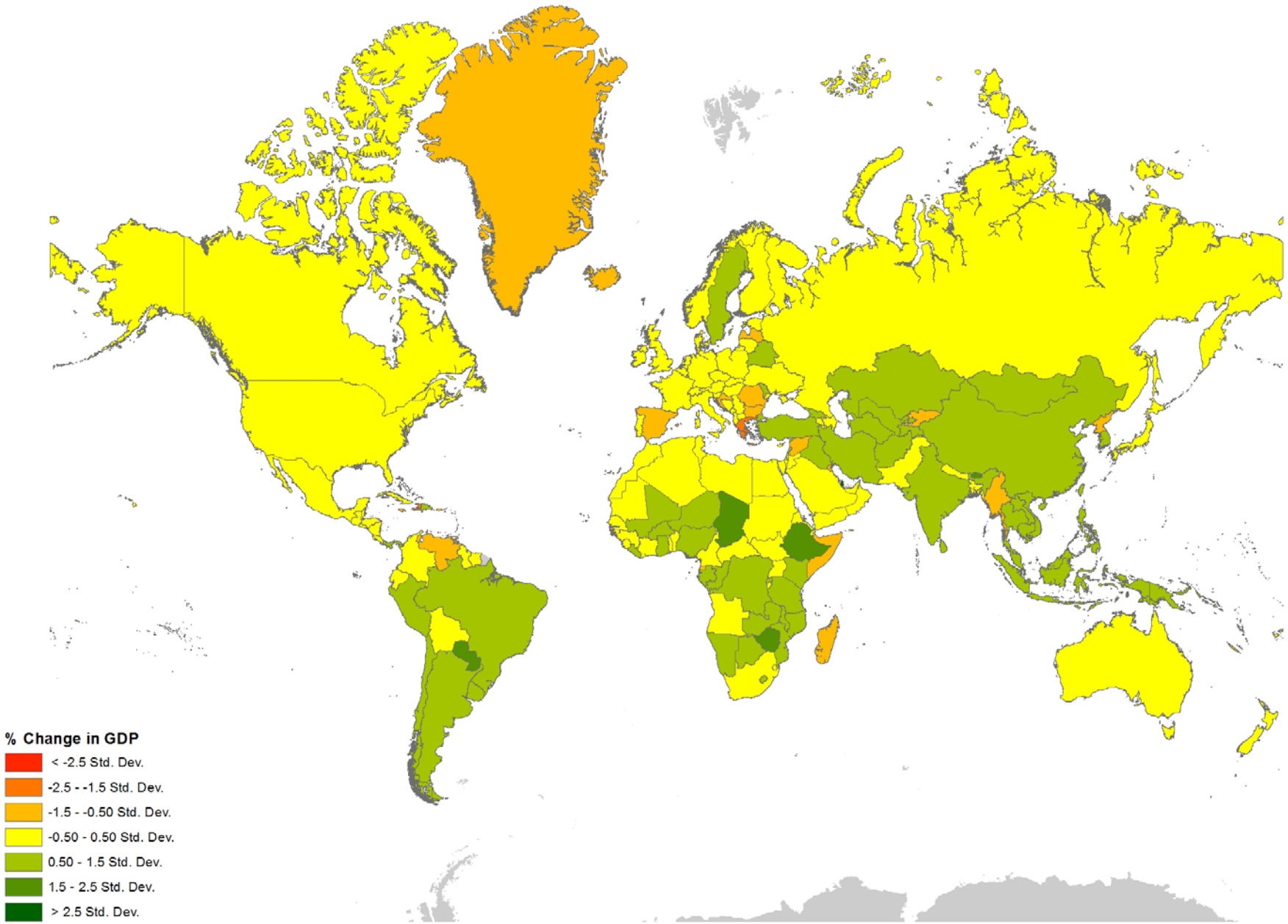
ANNUAL PERCENT CHANGE GDP: 2008



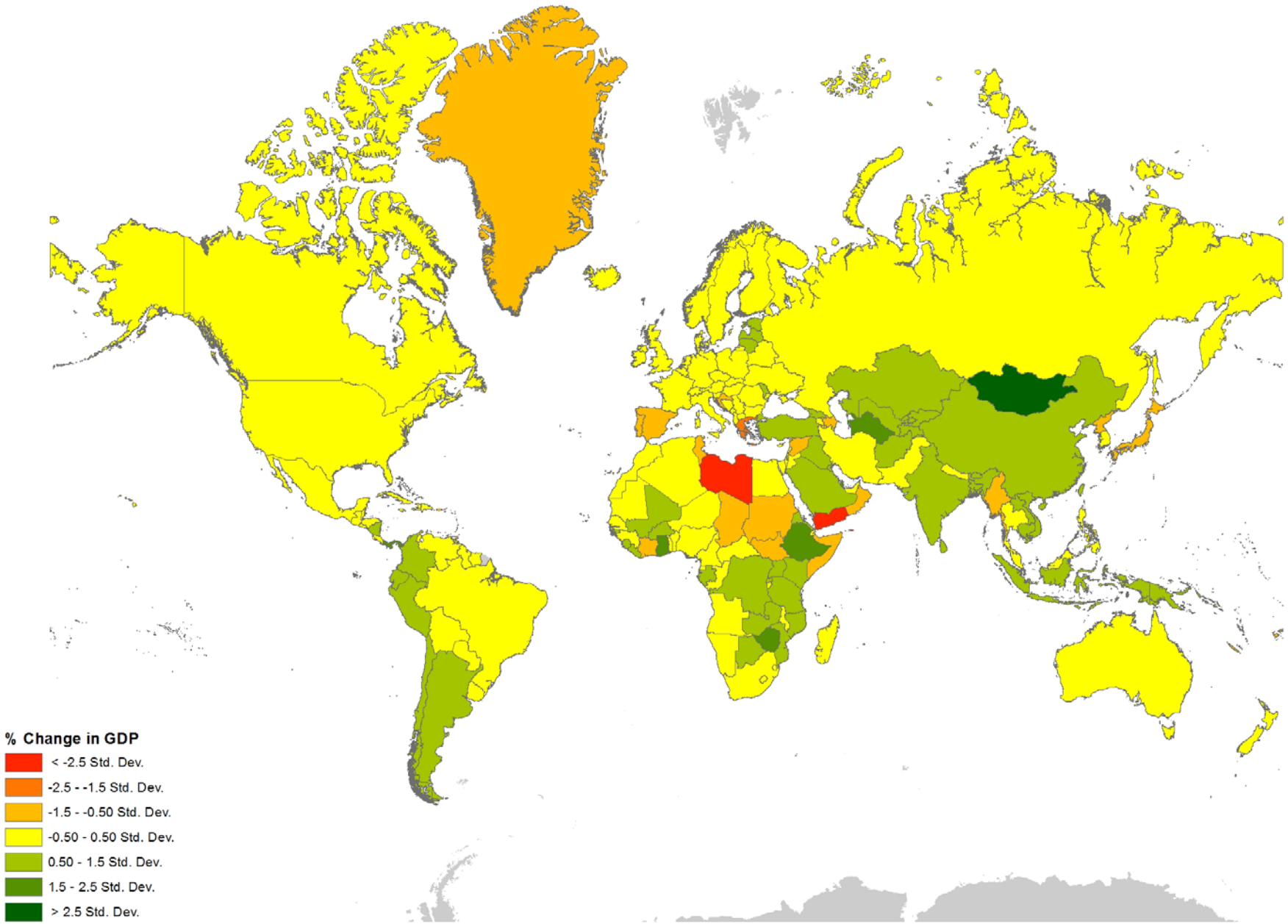
ANNUAL PERCENT CHANGE GDP: 2009



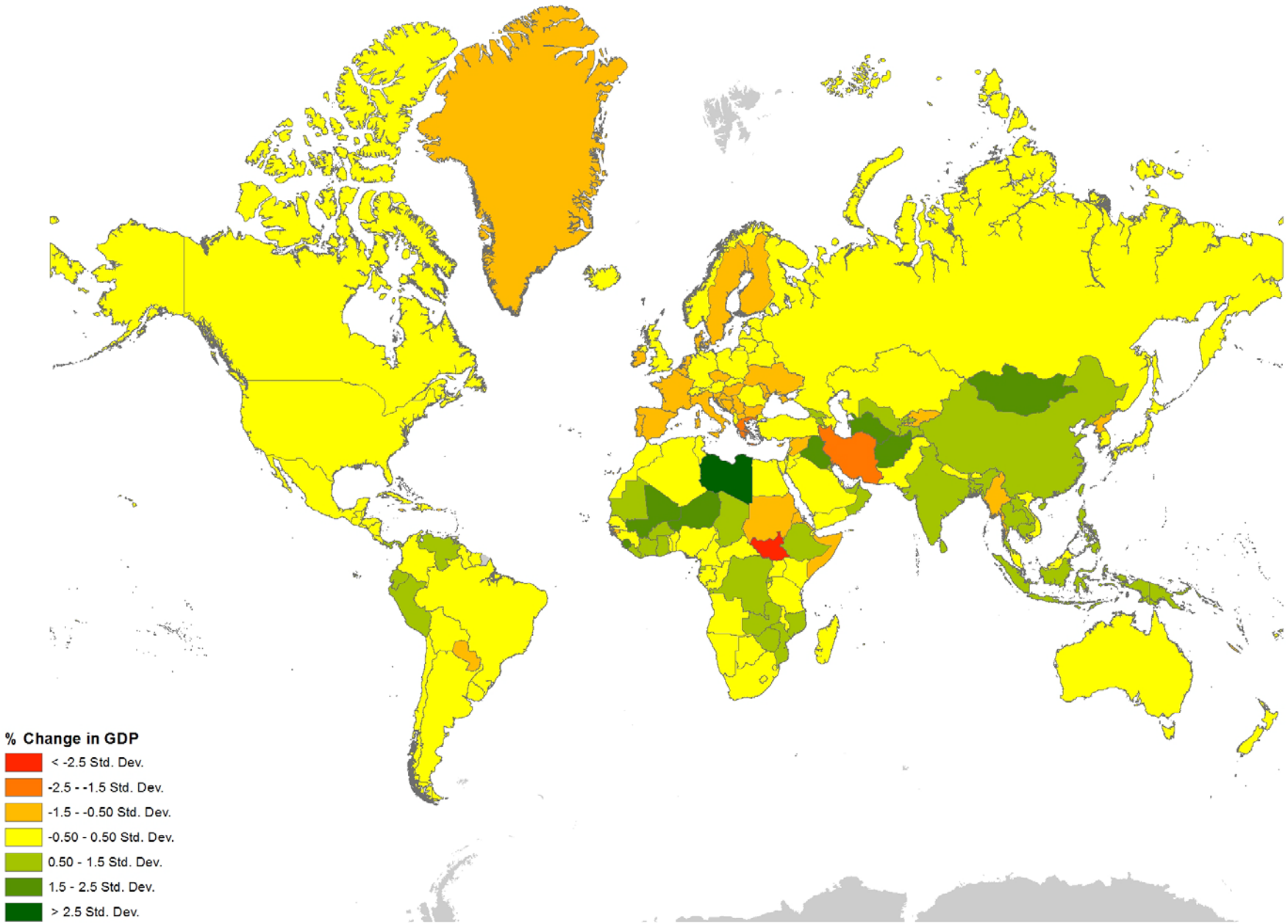
ANNUAL PERCENT CHANGE GDP: 2010



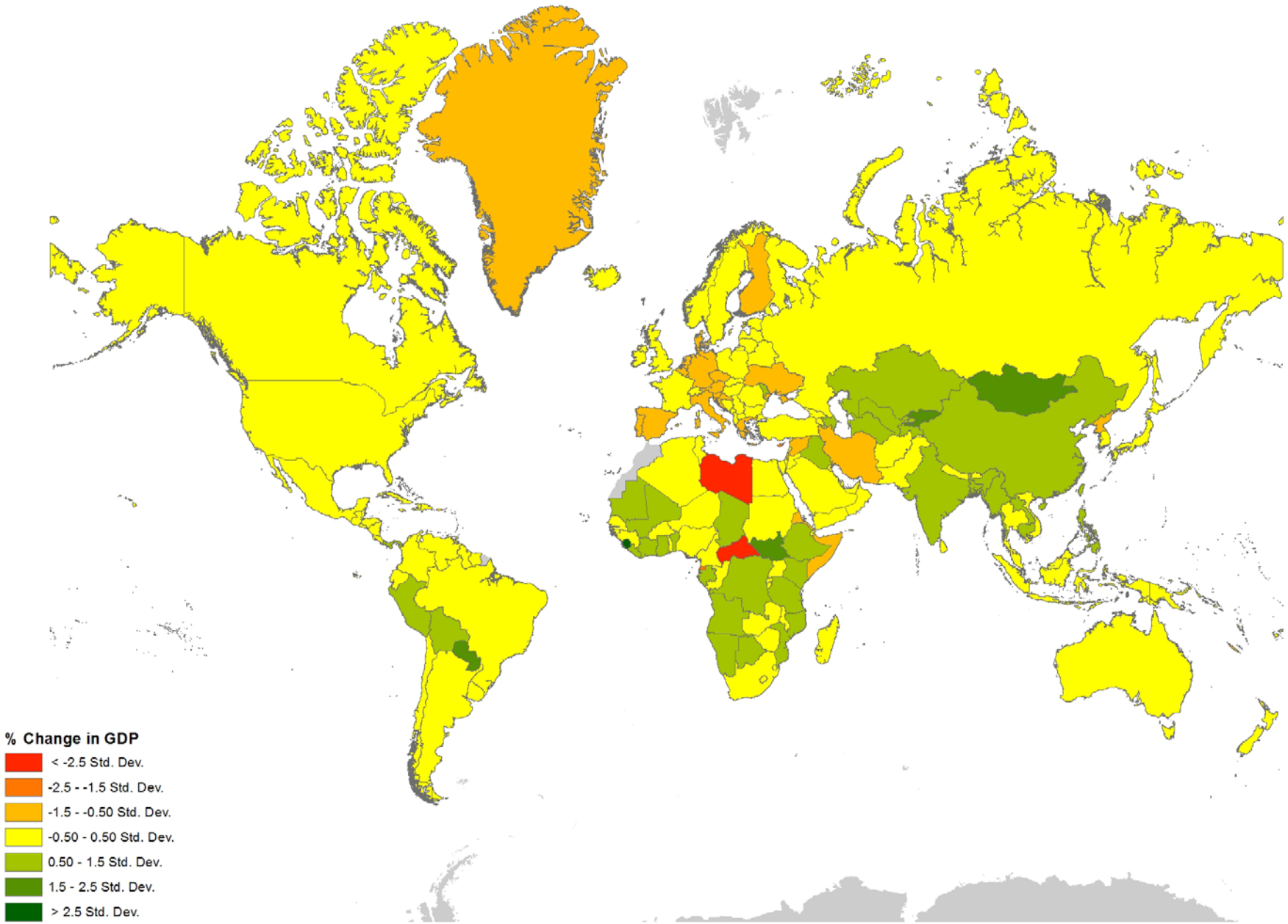
ANNUAL PERCENT CHANGE GDP: 2011



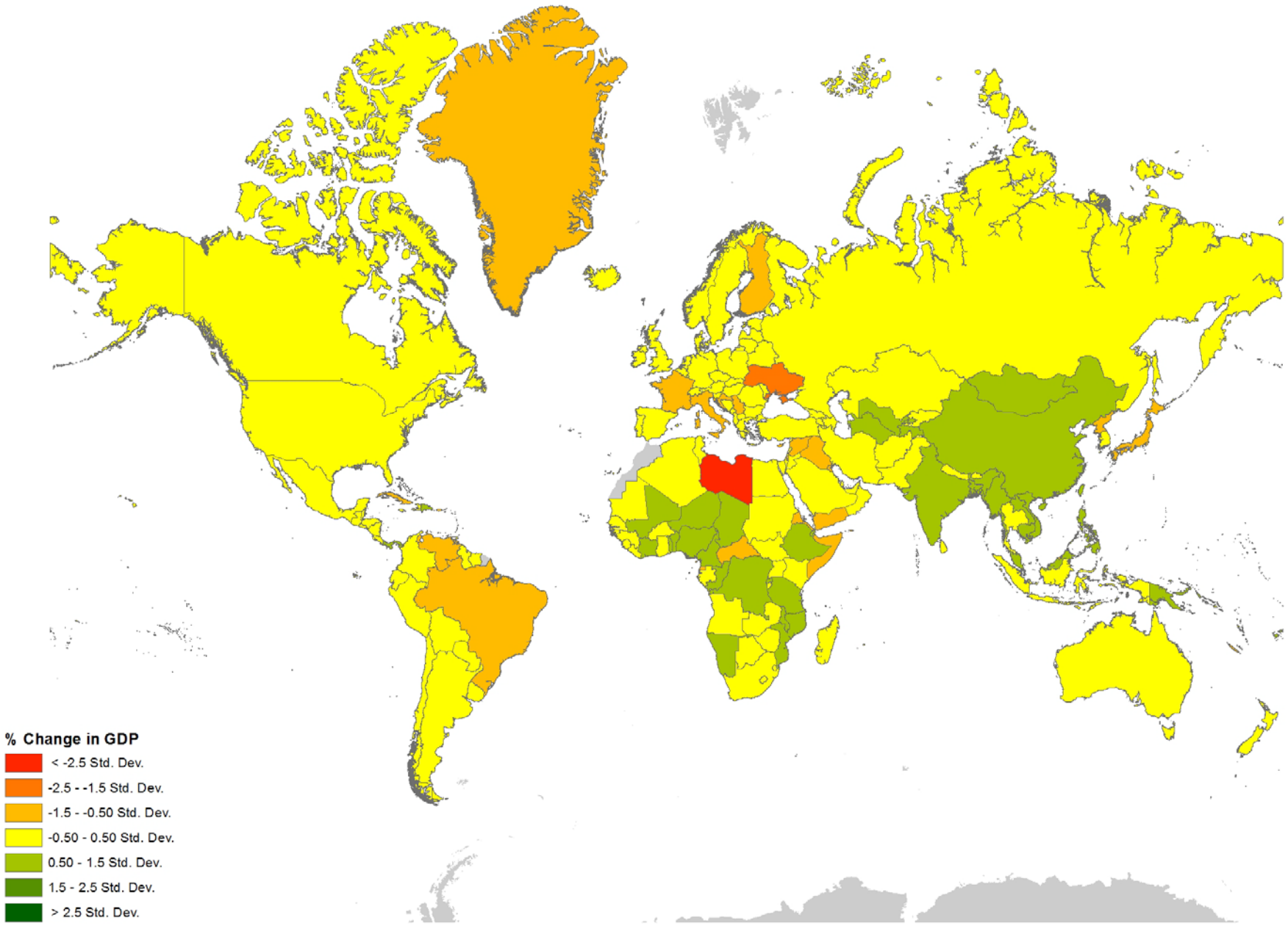
ANNUAL PERCENT CHANGE GDP: 2012



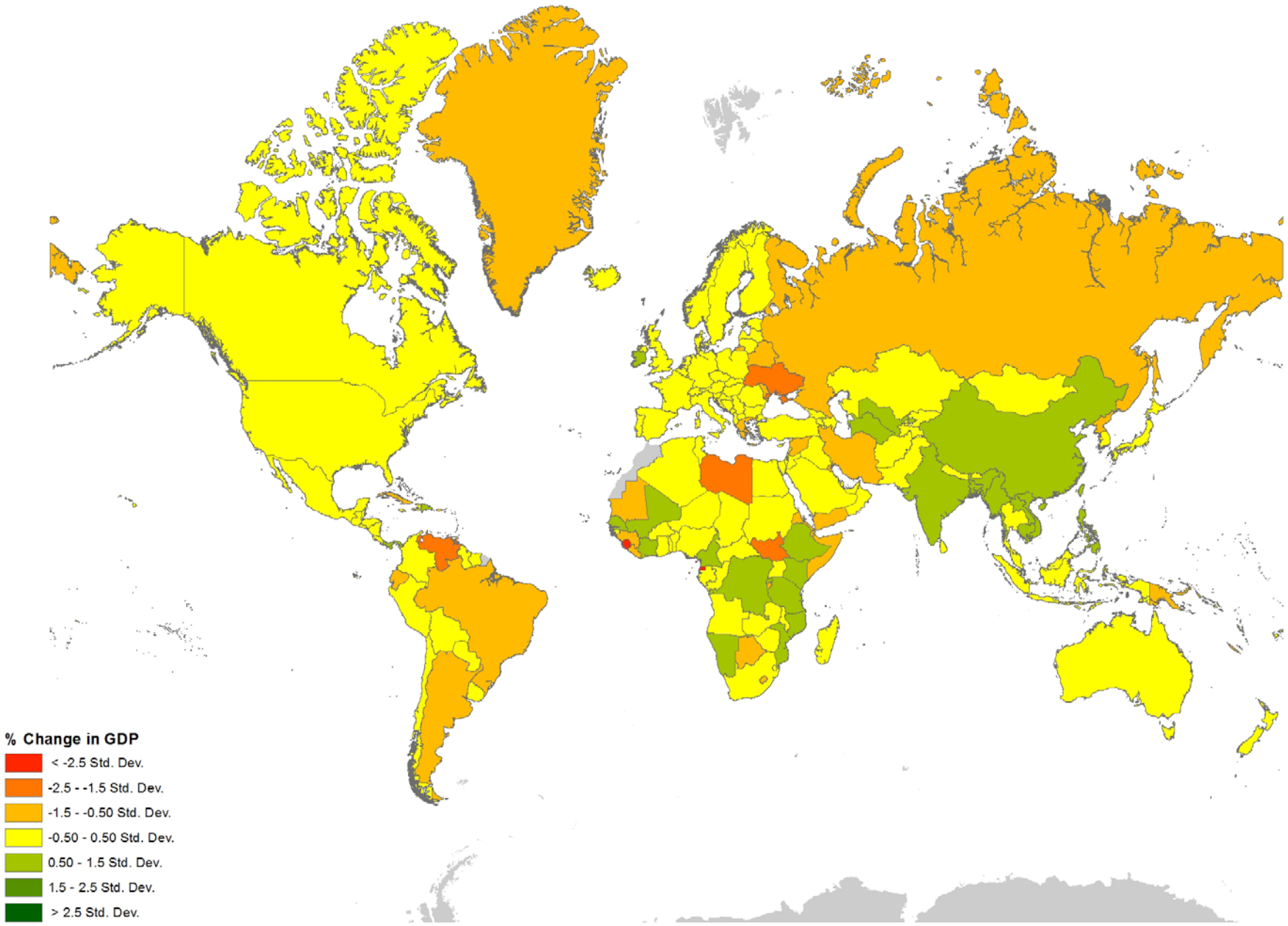
ANNUAL PERCENT CHANGE GDP: 2013



ANNUAL PERCENT CHANGE GDP: 2014

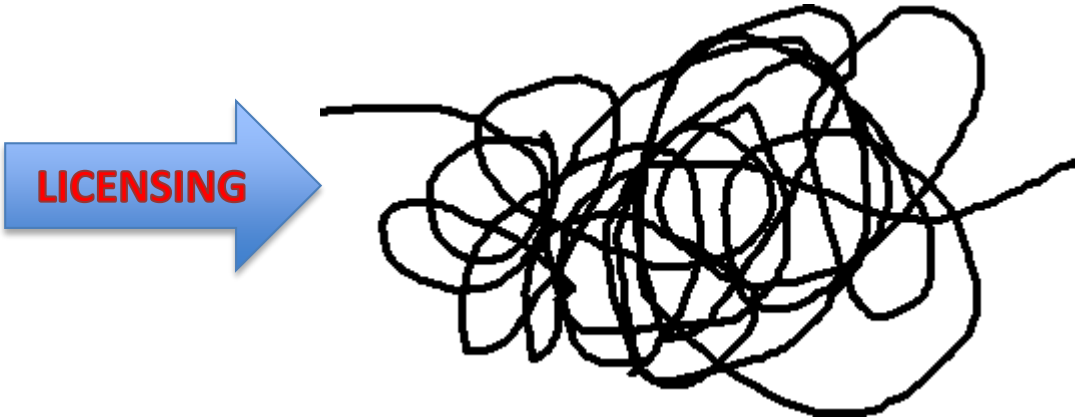


ANNUAL PERCENT CHANGE GDP: 2015



Issues & Challenges

- Overhead
  - Training
  - Implementation
  - Future skills development
- Duplication of data?
- Community buy-in
- Data life cycle
- Enterprise vs. open source
- Analog data



Conclusion

- Start a dialog
  - Data needs to be wanted…
  - In order to be prioritized…
  - In order to be used.
  - So start thinking about GIS -
  - Non-GIS people, too!
- Decisions → driven by data → Location!
  - Includes historical data
- *Caveat*: GIS will <u>not</u> be the <u>only</u> tool

THE ~~TRUTH~~ IS OUT THERE
DATA