Panama Stream Sediment Geochemistry

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Stream sediment surveys in Panama began in 1967 with a series of base-metal programs sponsored by the United Nations Development Program. The Rio Pito and Petaquilla (Cobre Panama) porphyry copper-gold districts were discovered as a result of these surveys. Numerous base metal anomalies were identified; only a few of these were field checked.

Stream sediment surveys conducted since the United Nations program focused increasingly on precious metals. The most comprehensive, carried out by Swedish Geological International (1988-1990), covers much of the area not reached by the UN and includes precious as well as base metals.

The area covered by each stream sediment survey is shown on the accompanying map; a summary of the multielement geochemical data collected (number of samples, sample density, elements run, analytical laboratory, etc.) is provided in the accompanying table. All of this data, for over 25,000 stream sediment samples, has been digitized (as vector files) and is available for purchase. Copies of the original sample location maps and reports are also provided. A similar database is available for Colombia.

Panama has several known porphyry copper deposits and numerous porphyry copper prospects with resource potential. Cerro Colorado contains 1.38 billion tonnes of 0.76% Cu, 0.08 ppm Au, and 5.1 ppm Ag (11.5 tons Cu, 3.5 Moz Au and 226 Moz Ag) in a single deposit. Petaquilla contains 25 Mtons Cu, 15.5 Moz Au and 205 Moz Ag in a cluster of deposits. Other porphyry deposits are known (e.g. Cerro Chorcha, Rio Pito) and a porphyry-related breccia pipe at Cana produced over two million ounces of gold. There are, in addition, several epithermal gold deposits (Santa Rosa, Remance, Cerro Quema) and numerous porphyry and epithermal prospects.

Pricing

CentralAmericaMap: a GIS database (in MapInfo or ArcGIS format) for Guatemala, Belize, El Salvador, Honduras, Nicaragua, Costa Rica, and Panama. The *Geography*, *Geology*, *TS Units*, *Prospects* and *Land Status* modules for all seven countries are available as a package for: $30,000

Individual modules are priced as follows:
Geography (includes digital elevation models and shaded relief): $ 5,000
Geology (*Geography* plus vector geology for all 7 countries): $10,000
TS Units (*Geology* plus a tectono-stratigraphic interpretation): $20,000
Prospects (*Geology*, TS Units and metallic mineral occurrences): $30,000
Land status (metallic mineral concessions and protected areas): $10,000

Individual countries including all five modules(*Geography*, *Geology*, *Prospects*, *TS Units* and *Land status)*: $10,000

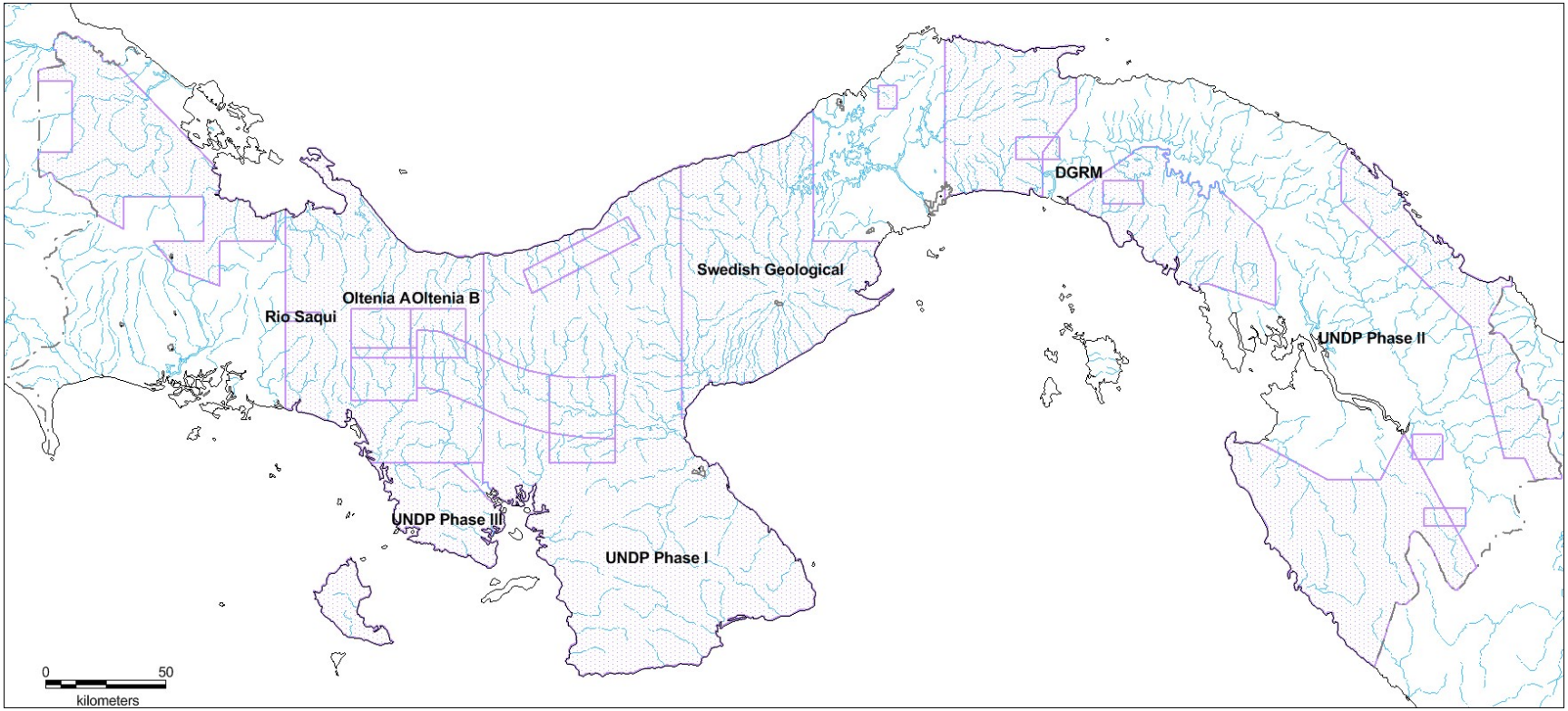
CentralAmericaMap *Geochemistry* module: multielement geochemical data, with an emphasis on stream sediment samples, is available for all of the Central American countries at a cost of $1 per sample for data provided as vector files, $0.50 per sample for data that is provided as georeferenced tiff images. Sample locations have been captured and multielement geochemical data has been digitized for Panama; data capture for other countries, listed below, is underway.

Guatemala (over 13,000 samples as georeferenced tiff images)
Honduras (over 20,000 samples as georeferenced tiff images)
Nicaragua (over 10,000 samples as georeferenced tiff images)
Panama (over 32,000 samples, including 25,000 stream sediment samples, in vector format and as georeferenced tiff images)
Costa Rica (over 8000 samples as georeferenced tiff images)
El Salvador (over 8000 samples as georeferenced tiff images)

For a more detail on the surveys that are included in each country go to: http://www.cbmap.net/images/caribbean-stream-sediment-surveys-summary.pdf.

CentralAmericaMap *Geophysics*: Airborne geophysical images including raw data, as grd files. Contact nelson@cbmap.net for coverage and pricing information.

Program	Location	Area (sq km)	Number of ss samples	Sample density	Elements Analyzed	Lab
UNDP Phase I (1965-1968)	Azuero Peninsula	17,000	5,750	0.34	Cu, Pb, Zn, Mo, Co, Mn, Ni	DGRM Panama
UNDP Phase II (1969-1972)	A: Bocas de Toro	3950	1633	0.41	Cu, Pb, Zn, Mo	DGRM Panama
	B: Maje	2800	1377	0.49	Mn, a few Ni, Co	
	C: San Blas, Darien	3850	1807	0.47	Some Au, As, Ag	
	D: Pirre	4800	2200	0.46		
	Total	15,400	7037	0.46		
Oltenia (1970-1972)	Oltenia A	585	209	0.36	Cu	DGRM Bondar
	Oltenia B	466	275	0.59	Cu, Zn, Mo	
	Bison 2 & 3	252	60	0.24	Cu, Zn, Mn	DGRM
	Rio Rey	15	26	0.58	Cu	DGRM
Bocas Toro	Bocas del Toro	2,000	68	0.034	Cu, Pb, Zn, Mo	Skyline
UNDP Phase III	Sona Peninsula	1542			Cu, Pb, Zn,	DGRM Panama
	Coiba Island	511			Ag, As, Co,	
	Total	2,053	1202	0.59	Mo, Ni, Mn	
DGRM (1978-1981)	Southern Belt	1,649	1678	1.02	Cu, Pb, As in seds	DGRM Panama
	Northern Belt	188	410	2.18	Zn, Pb, As in soils	
	Colon	80	671	8.38	Au, Ag in rocks	
	Eastern Panama	135	524	3.89		
	Darien	40	425	10.63		
	Total	2,092	3708	1.77		
TexasGulf -1981	Remance compilation	450	450	1	Zn, Cu, Pb, As	DGRM
Codemin -1980	Cerro Colorado	750	324	0.43	Cu, Pb, Zn, Mo, Au, Ag, As	DGRM Panama
Codemin -1982	Rio Saqui	25	81	3.2	Cu, Pb, Zn, Mo, As, Mn	DGRM Panama
DGRM -1982	Rio Tabasara	526	229	0.44	Au, Ag	DGRM Panama
IAEA -1984	Veraguas	760	88	0.12	Cu, Pb, Zn, Mo Au, As, Mn, U	DGRM Panama
Swedish Geological (1988-1990)	West Area	7,550	387	0.05	Cu, Pb, Zn	DGRM Panama
	Central Area	6,149	499	0.08	Co, Ni, Cr,	
	East Area	1,925	102	0.05	Mn, Au, As	


DGRM
Swedish Geological
Oltenia A
Oltenia B
Rio Saqui
UNDP Phase II
UNDP Phase III
UNDP Phase I
0
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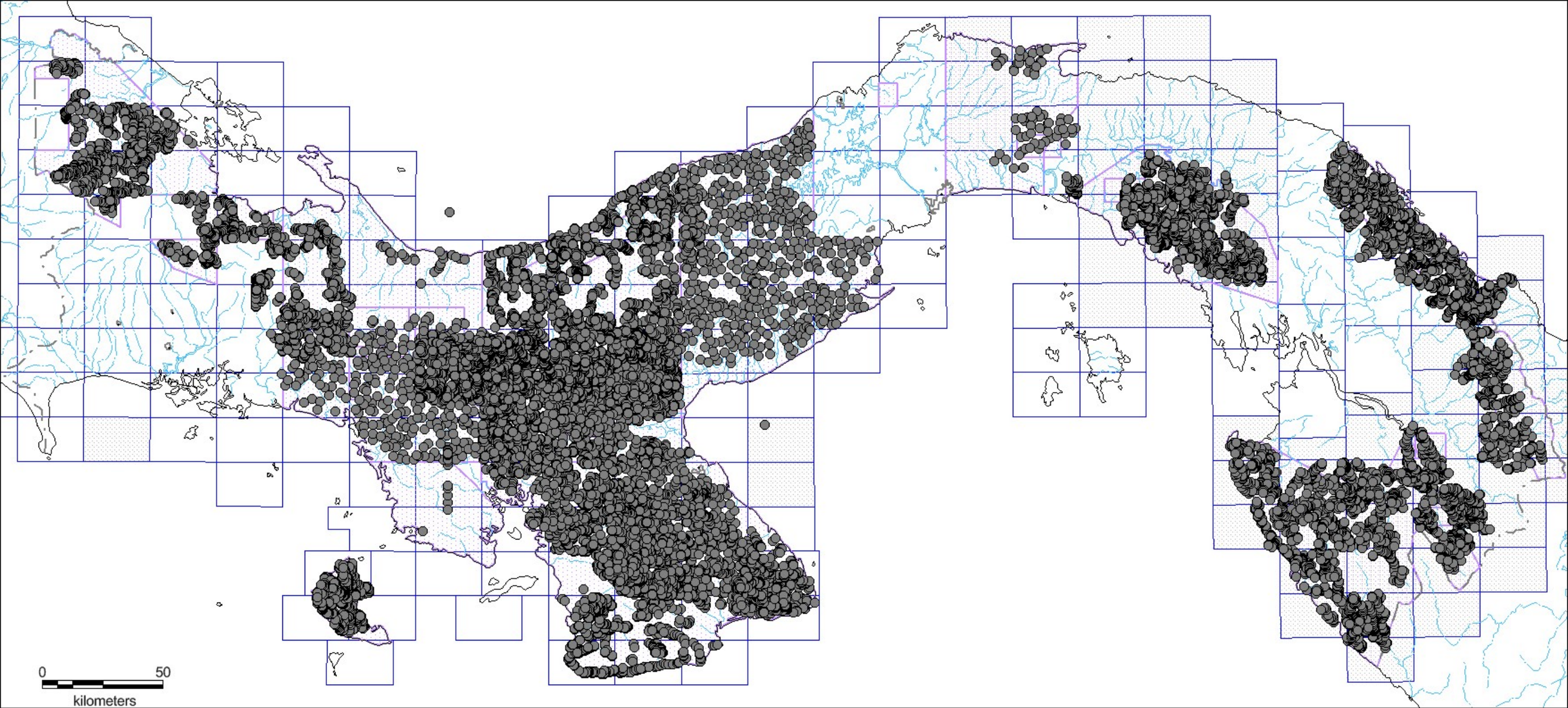
kilometers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