Supplementary information

Average width

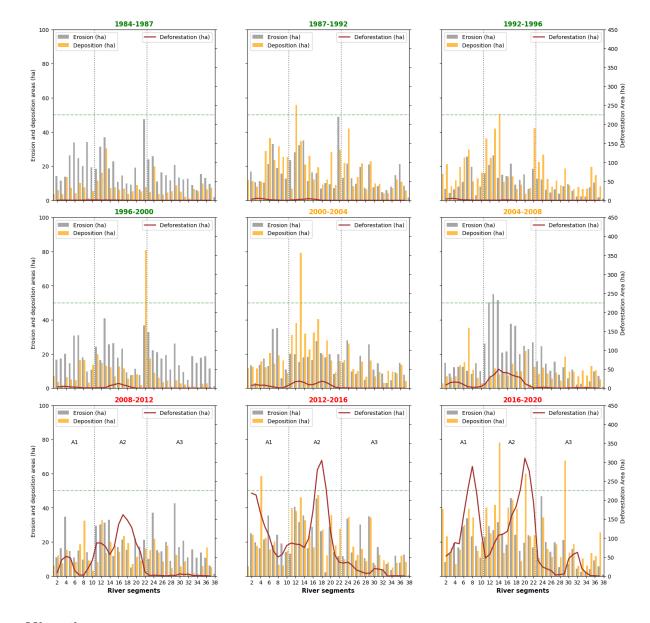
ASGM-impact period	Year	Section A1	Section A2	Section A3	Total
	1984	115.7	114.5	164.9	131.7
	1987	147.1	129.8	182.4	153.1
Minimal	1992	146.0	125.7	179.0	150.2
mining	1996	110.1	122.1	163.9	132.0
	2000	157.1	147.8	186.3	163.7
	Median per period	146.0	125.7	179.0	150.2
	2004	116.8	144.0	183.2	148.0
Moderate mining	2008	142.3	191.9	184.7	173.0
mining	Median per period	129.5	168.0	184.0	160.5
	2012	155.3	182.6	192.2	176.7
Intensive	2016	176.6	190.5	187.6	184.9
mining	2020	158.5	191.5	180.0	176.7
	Median per period	158.5	190.5	187.6	178.9
Total		143.0	155.7	181.1	160.0

Table x. Average width medians per period and sub-periods

Erosion and deposition

ASGM-impact	Sub-period	Erosion (ha)			Sub-period Erosion (ha)		Deposition	on (ha)	
Period		A1	A2	A3	A1	A2	A3		
Minimal	1984-1987	206.4	245.8	217.4	62.4	116.7	95.5		
mining	1987-1992	162.5	245.3	186.3	212.9	264.4	205.3		
	1992-1996	99.4	188.6	96.8	171.3	261.8	189.1		
	1996-2000	183.3	247.6	260.9	79.2	195.7	64.5		
Moderate	2000-2004	155.4	222.3	184.8	143.1	365.0	169.2		
mining	2004-2008	114.9	393.8	145.0	106.7	117.3	139.8		
Intensive	2008-2012	142.1	254.7	255.2	122.7	193.3	140.5		
mining	2012-2016	224.3	294.7	215.9	191.8	365.7	203.2		
	2016-2020	180.3	299.0	195.0	240.0	438.8	275.1		

Table x. Erosion and deposition areas (ha) per sub-periods and river section.



Migration

ASGM-impact period	Sub-periods	A2	А3	Total
	1984-1987	11.01	13.15	12.77
	1987-1992	10.39	7.00	8.29
Minimal mining	1992-1996	8.27	5.48	6.41
	1996-2000	6.94	4.73	5.33
	Median per period	8.56	5.96	7.26
	2000-2004	12.32	6.05	7.14
Moderate mining	2004-2008	9.86	4.86	5.82
	Median per period	11.09	5.45	8.27
	2008-2012	9.93	5.55	6.53
Intensive mining	2012-2016	13.08	7.97	9.10

	2016-2020	15.65	9.05	10.48
	Median per period	11.15	6.67	8.91
Total		9.20	5.92	8.27

Table x. Migration rates medians per period and sub-periods

Satellite images catalog

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1 9 8 4	LT05_003069_198 40722	Lan dsat 5	0 0 3	069	7/22/1984
1 9 8 4	LT05_003069_198 40807	Lan dsat 5	0 0 3	069	8/7/1984
1 9 8 4	LT05_003069_198 41010	Lan dsat 5	0 0 3	069	10/10/1984
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1 9 8 7	LT05_002069_198 70318	Lan dsat 5	0 0 2	069	3/18/1987
1 9 8 7	LT05_002069_198 70521	Lan dsat 5	0 0 2	069	5/21/1987
9	LT05_002069_198 70622	Lan dsat	d d	069	6/22/1987

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6	60723	8	2	069	7/23/2016
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1 6	LC08_003069_201 60612	Lan dsat 8	0 0 3	069	6/12/2016
1	LC08_003069_201 60628	Lan dsat 8	0 0 3	069	6/28/2016
1	LC08_003069_201 60714	Lan dsat 8	0	069	7/14/2016
1	LC08_003069_201 60730	Lan dsat 8	0 0 3	069	7/30/2016
1	LC08_003069_201 60815	Lan dsat 8	0 0 3	069	8/15/2016
1	LC08_003069_201 60831	Lan dsat 8	0	069	8/31/2016
1	LC08_003069_201 60916	Lan dsat 8	0 0 3	069	9/16/2016
1	LC08_003069_201 61018	Lan dsat 8	0	069	10/18/2016
1	LC08_002069_201 70304	Lan dsat 8	0	069	3/4/2017
0 1	LC08_002069_201 70320	Lan dsat 8	0	069	3/20/2017
1 7	LC08_002069_201 70405	Lan dsat 8	0	069	4/5/2017
1 7	LC08_002069_201 70421	Lan dsat 8	0	069	4/21/2017
1 7	LC08_002069_201 70507	Lan dsat 8	0 0 2	069	5/7/2017

2 0 1	LC08_002069_201 70608	Lan dsat 8	0 0 2	069	6/8/2017
2 0 1	LC08_002069_201 70624	Lan dsat 8	0 0 2	069	6/24/2017
0 1	LC08_002069_201 70710	Lan dsat 8	Q Q 2	069	7/10/2017
0 1 7	LC08_002069_201 70726	Lan dsat 8	0 0 2	069	7/26/2017
0 1	LC08_002069_201 70811	Lan dsat 8	Q Q 2	069	8/11/2017
0 1 7	LC08_002069_201 70827	Lan dsat 8	0 0 2	069	8/27/2017
2 0 1	LC08_002069_201 70928	Lan dsat 8	Q Q 2	069	9/28/2017
2 0 1	LC08_003069_201 70311	Lan dsat 8	Q Q 3	069	3/11/2017
2 0 1	LC08_003069_201 70327	Lan dsat 8	Q Q 3	069	3/27/2017
2 0 1	LC08_003069_201 70428	Lan dsat 8	0	069	4/28/2017
2 0 1	LC08_003069_201 70514	Lan dsat 8	Q Q 3	069	5/14/2017
2 0 1	LC08_003069_201 70530	Lan dsat 8	0	069	5/30/2017
2 0 1	LC08_003069_201 70615	Lan dsat 8	0	069	6/15/2017
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2 0 1	LC08_003069_201 70802	Lan dsat 8	0	069	8/2/2017
2 0 1	LC08_003069_201 70903	Lan dsat 8	0	069	9/3/2017
2 0 1	LC08_003069_201 70919	Lan dsat 8	0 0 3	069	9/19/2017
2 0 1	LC08_003069_201 71005	Lan dsat 8	0	069	10/5/2017
2 0 1	LC08_003069_201 71021	Lan dsat 8	0	069	10/21/2017
2 0 1	LC08_002069_201 80323	Lan dsat 8	0	069	3/23/2018
2 0 1	LC08_002069_201 80424	Lan dsat 8	0 0 2	069	4/24/2018
2 0 1 8	LC08_002069_201 80510	Lan dsat 8	0	069	5/10/2018
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1 8	LC08_002069_201 80611	Lan dsat 8	0	069	6/11/2018
2 0 1 8	LC08_002069_201 80627	Lan dsat 8	0 0 2	069	6/27/2018
1 8	LC08_002069_201 80713	Lan dsat 8	0 0 2	069	7/13/2018

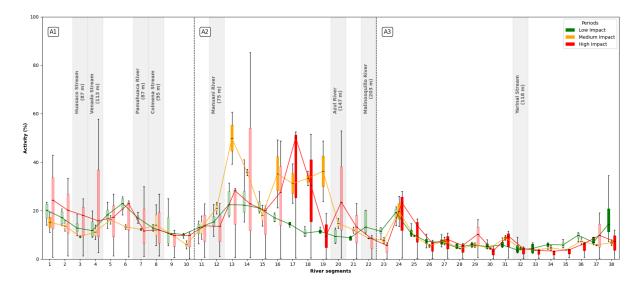
2 0 1 8	LC08_002069_201 80729	Lan dsat 8	Q Q 2	069	7/29/2018
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2 0 1	LC08_002069_201 81017	Lan dsat 8	Q Q 2	069	10/17/2018
0 1	LC08_003069_201 80330	Lan dsat 8	Q Q 3	069	3/30/2018
0 1	LC08_003069_201 80415	Lan dsat 8	Q Q 3	069	4/15/2018
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2 0 1 8	LC08_003069_201 80517	Lan dsat 8	Q Q 3	069	5/17/2018
2 0 1 8	LC08_003069_201 80602	Lan dsat 8	Q Q 3	069	6/2/2018
0 1	LC08_003069_201 80618	Lan dsat 8	0	069	6/18/2018
2 0 1	LC08_003069_201 80704	Lan dsat 8	Q Q 3	069	7/4/2018
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2 0 1 8	LC08_003069_201 80922	Lan dsat 8	Q Q 3	069	9/22/2018
1 8	LC08_003069_201 81008	Lan dsat 8	Q Q 3	069	10/8/2018
0 2	LC08_002069_202 00312	Lan dsat 8	0 0 2	069	3/12/2020
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2 0 2 0	LC08_002069_202 00819	Lan dsat 8	0 0 2	069	8/19/2020

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0 2	LC08_002069_202 01022	Lan dsat 8	0 0 2	069	10/22/2020
0 2	LC08_003069_202 00303	Lan dsat 8	0 3	069	3/3/2020
0 2	LC08_003069_202 00319	Lan dsat 8	0 0 3	069	3/19/2020
2 0 2 0	LC08_003069_202 00404	Lan dsat 8	0 0 3	069	4/4/2020
2 0 2 0	LC08_003069_202 00420	Lan dsat 8	0 0 3	069	4/20/2020
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2 0 2 0	LC08_003069_202 00623	Lan dsat 8	0 0 3	069	6/23/2020
2 0 2 0	LC08_003069_202 00709	Lan dsat 8	0	069	7/9/2020
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Activity



La actividad en el periodo de alto impacto es significativamente distinta y mas baja que en el subperiodo de bajo impacto, mientras que el subperiodo de impacto medio no difiere estadísticamente de ninguno de los otros dos periodos de impacto.

Prueba de Kruskal-Wallis:

Estadístico: 8.914, p-valor: 0.012

Resultado: Existen diferencias significativas entre los niveles de impacto en cuanto a la

actividad.

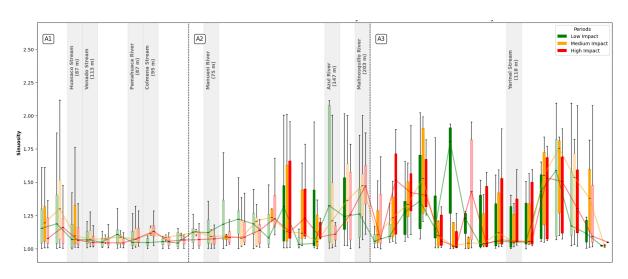
Prueba de Mann-Kendall para tendencia

Tendencia: Decreciente

Estadístico Tau: -0.085, p-valor: 0.020

Resultado: La tendencia es estadísticamente significativa en funcion del nivel de impacto.

Sinuosity



Prueba de Kruskal-Wallis para Sinuosity:

Estadístico: 1.634, p-valor: 0.442

Resultado: No se encontraron diferencias significativas entre los niveles de impacto para

Sinuosity.

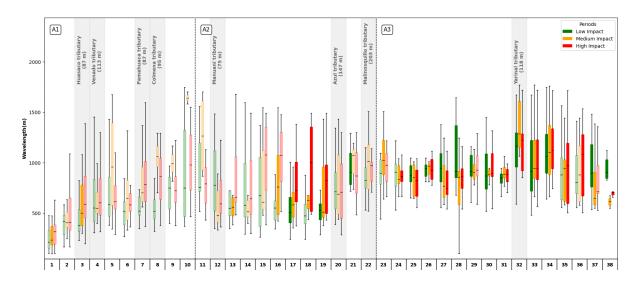
Prueba de Mann-Kendall para Sinuosity:

Tendencia: No significativa

Estadístico Tau: 0.015, p-valor: 0.320

Resultado: La tendencia en Sinuosity no es estadísticamente significativa.

Wavelength:



Prueba de Kruskal-Wallis para Wavelength:

Estadístico: 32.525, p-valor: 0.000

Resultado: Existen diferencias significativas entre los niveles de impacto para Wavelength

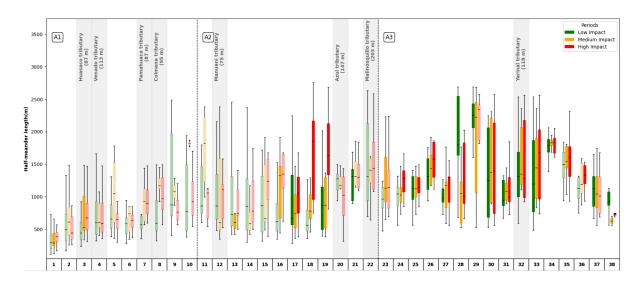
Prueba de Mann-Kendall para Wavelength:

Tendencia: Creciente

Estadístico Tau: 0.063, p-valor: 0.000

Resultado: La tendencia en Wavelength es estadísticamente significativa.

Half-meander length



Prueba de Mann-Kendall para Half-meander length:

Tendencia: Creciente

Estadístico Tau: 0.063, p-valor: 0.000

Resultado: La tendencia en Semimeander length es estadísticamente significativa

Prueba de Kruskal-Wallis para Half-meander length:

Estadístico: 22.482, p-valor: 0.000

Resultado: Existen diferencias significativas entre los niveles de impacto para Semimeander

length.