Lithologic Compilation of Basins Sampled for ^{10}Be

Adam M. Forte

Data Sources: Most sampled catchments were covered by at least one 1:200,000 scale geologic map in the Soviet geologic map series, specifically K-38-VII [Gamkrelidze and Kakhazdze, 1959], K38-VIII [Melnikov and Popova, 1975], K-38-XIII [Dzhanelidze and Kandelaki, 1957], , K-38-XIV [Kandelaki and Kakhadze, 1957], K-38-XV [Kandelaki and Kakhazdze, 1957], K-38-XVI [Krestnikov, 1957], K-38-XX [Gamkrelidze, 1958], and K-39-XXV [Khain and Shardanov, 1960], however some catchments in Azerbaijan were not (i.e. there are no 1:200,000 scale geologic maps published for these regions), and for those we relied on the 1:500,000 scale geologic map of Azerbaijan [Ali-Zade, 2005] along with more detailed unit descriptions from Alizadeh et al. [2016].

Lithology Classification: For the 1:200,000 scale Russian geologic map sheets, we transliterated individual map unit descriptions. As is the standard in the region, map units are defined chronostratigraphically as opposed to lithostratigraphically and map unit descriptions are often similar between map sheets, i.e. they may not be specific to the map sheet in question, but rather general descriptions of the lithologies of that age in the region. Consequently, the description of many map units reflect significant lithologic heterogeneity which required interpretation and classification of dominant rock types for each mapped unit. We defined 11 different lithologic categories: limestone and minor clastics, limestone and marl, limestone, marl, limestone and sandstone, sandstone and shale, sandstone and minor carbonate, shale, conglomerates, volcanics undifferentiated, phyllites and schists, and granite, and then classified each map unit as one of these categories based on the order in which lithologies were listed in the descriptions and field observations. A complete list of units encountered on individual map sheets, their ages, the interpreted rock-type, and their original translitered map descriptions are included in Table 1.

Map Sheet	Unit Symbol	Stage(s)	Rocktype	Full description
K-38-XVI	J_3km+t	Kimmeridgian Tithonian	limestone minor clastics	Limestones; marls; breccia and conglomerate. Clays; sandstones; and in places basalt and gypsum lenses.
K-38-XVI	J_3ox$_2$	Oxfordian	limestone minor clastics	Reef and dolomitic limestone; sandstone; clay. Clay and marley schists with interbedded marls.
K-38-XVI	K_1b+v	Berriasian Valangian	limestone marl	Limestone; marl; marl and shale
K-38-XVI	K_1h_1	Hauterivian	marl	Marls; marls and clay with interbedded sandstones
K-38-XVI	K_1h_1+Br	Hauterivian Barremian	sandstone shale	Sandstone and shales (Pasanauri Suite)
K-38-XVI	K_1ap+al	Aptian Albian	sandstone shale	sandstones and shales with interlayers of marls and limestones / Dnyalskaya and Navtishevskaya Formations. limestone; marl; carbonate clay. Sandstones and shale with intercalations of marls and limestones
K-38-XVI	K_2cm+t$_1$	Cenomanian Turonian	sandstone shale	Sandstone; mudstone; shale; silicon and siliceous shale (Ukugmart and Ananur Formations). Porphyrite tuffs; tuff breccias; platy marls.

Map Sheet	Unit Symbol	Stage(s)	Rocktype	Full description
K-38-XVI	K_2t_2-cp	Turonian Campanian	limestone	red and pinkish limestones; lithographic limestones; granular limestones; marls; marl and clay schists
K-38-XVI	J_1t	Toarcian	sandstone shale	shale and sandstone
K-38-XVI	J_1p_1	Pliensbachian	volcanic undiff	Volcanic rocks with shale interlayers and limestone lenses
K-38-XVI	J_1p_2	Pliensbachian	sandstone shale	slate and shale with rare intercalations of arkosic sandstone and argillites
K-38-XVI	μJ_2	Middle Jurassic	volcanic undiff	Diabase and porphyrites; sometimes albitized
K-38-XVI	J_2a	Aalenian	sandstone shale	shale and sandstone
K-38-XVI	J_1h+s	Hettangian Sinemurian	sandstone shale	quartz-arkosic sandstones; shale; conglomeratres; albitic tuffs; marbles
K-38-XX	P_1+$P_2{}^1$	Paleocene Eocene	sandstone shale	calcareous clay-sandstones; sometimes tuffbreccias and tuffaceous sandstones; marls; limestones
K-38-XX	$P_2{}^{2a}$	Middle Eocoene	volcanic undiff	Layered tuffs; tuffaceous sandstones and argillites
K-38-VII	Pz_3-T	Upper Paleozoic Triassic	phyllite schist	Upper Paleozoic -Triassic: Phyllite; argillaceous slate; sandstones and quartzites with lenses of marbles and limestones
K-38-VII	$J_1{}^3$	Early Jurassic	sandstone shale	Upper Early Jurassic: Shale and sandstone with marl and limestone lenses
K-38-VII	J_1	Early Jurassic	sandstone shale	Early Jurassic: Clayey shales and sandstones
K-38-VII	$J_1{}^{1+2}$	Early Jurassic	sandstone shale	Lower and Middle Early Jurassic: Slatey shales and sandstones
K-38-VIII	J_1p	Pliensbachian	sandstone shale	Porphyrites; shales; and sandstones
K-38-XIII	Cr_1b	Barremian	limestone	Limestones; marly limestones
K-38-XIII	Cr_1v+h	Valangian Hauterivian	sandstone minor carbonate	quartz-arkosic sandstones; conglomeratres; sandy and dolomitic limestones
K-38-XIII	J_3km	Kimmeridgian	sandstone shale	Gypsum-bearing claystones; sandstone; conglomerates; isolated basalt and tuff breccia; and gypsum lenses
K-38-XIII	Cr_2t-d	Turonian Danian	volcanic undiff	Basalts; basalt tuffs; tuff breccias; tuff sandstones; clays; limestones
K-38-XIII	Cr_2cm	Cenomanian	sandstone minor carbonate	Glauconitic sandstones; clays; isolated limestones
K-38-XIII	J_2bj	Bajocian	volcanic undiff	Porphyrites; porphyritc tuffs; tuff breccias; tuff sandstones; shale; graywacke sandstones

Map Sheet	Unit Symbol	Stage(s)	Rocktype	Full description
K-38-XIII	Cr_1ap+al	Aptian Albian	limestone marl	Clay; marls; fossiliferous limestones
K-38-XIII	J_1^3	Early Jurassic	sandstone shale	Fine grained sandstones; shale
K-38-XIII	Pg_3+N_1^1	Oligo Miocene	sandstone shale	Gypsum-bearing claystones; sandstones; interbedded marls at the base
K-38-XIII	N_1s^{1+2}	Sarmatian	sandstone shale	Claystones; sandstones with intercalations of marls and conglomerates
K-38-XIII	N_1^2	Middle Miocene	sandstone shale	Claystones; sandstones; marls; limestones
K-38-XIII	Cr_2	Late Cretaceous	sandstone minor carbonate	Marls and limestones in the south; glauconitic sandstones and limestones in the north
K-38-XIII	Cr_1	Early Cretaceous	limestone	limestones; dolomitic limestones and flinty limestones
K-38-XIV	J_1^3	Early Jurassic	sandstone shale	shale and sandstone
K-38-XIV	J_2bj	Bajocian	volcanic undiff	Porphyrites and spilites; porphyritic and spilitic tuffs; tuffbreccias; tuff sandstones; shale; greywacke and arkosic sandstones; and conglomerates
K-38-XIV	γPz_2	Middle Proterozoic	granite	Mid-proterozoic granitoids
K-38-XIV	αPz_1	Early Proterozoic	phyllite schist	Precambrian to lower paleozoic; crystalline schsits and gneisses with intruded ancient granitoids
K-38-XIV	Cr_2	Late Cretaceous	sandstone minor carbonate	marls; limestones; clays; sandstones; siliceous shales in the northeast; limestone and glauconite sandstones in the southwest
K-38-XIV	Cr_1	Early Cretaceous	sandstone shale	in the north-east-shale; sandstones with layers of marl and limestone (carbonate flysch); in the southwest; quartz-arkos sandstones; conglomerates; dolomitic limestone; limestone; marl; glauconitic sandstone
K-38-XIV	N_1^2	Middle Miocene	sandstone minor carbonate	Sanstones and marls
K-38-XV	J_1^3	Early Jurassic	sandstone shale	Interbedded sandstones and shales
K-38-XV	J_3+Cr_1v	Late Jurassic Valanginian	limestone minor clastics	marls; limestones; conglomerates; shale with sandstone interlayers
K-38-XV	J_1^3+J_2	Early Middle Jurassic	sandstone shale	shale; mudstone; sandstone
K-38-XV	Cr_1	Early Cretaceous	sandstone shale	sandstone; shale and mudstone with sandstone and marl interbeds
K-38-XV	Cr_2t-d	Turonian Danian	limestone marl	limestones; marls; mudstones; conglomerates in the middle

Map Sheet	Unit Symbol	Stage(s)	Rocktype	Full description
K-38-XV	Cr_2cm	Cenomanian	sandstone shale	shale; sandstone; isolated conglomerates; in the upper part shale and lidite
K-38-XV	Pg_2^3+Pg_3^1	Eocene Oligocene	sandstone shale	clay; sandstones in the bottoms with interlayers of micro conglomerates
K-38-XV	N_1s^{1+2}	Sarmatian	sandstone shale	clay; sandstone; marl; conglomerate; limestone
K-38-XV	N_1m+N_2pn	Meotian Pontian	conglomerates	Conglomerates with loam and sands and pebble interlayers
K-38-XV	N_2ak+ap	Akchagyl Apsheron	conglomerates	Conglomerates with lenses of sand; clay; and sandy loams
K-39-XXV	Cr_2cm	Cenomanian	volcanic undiff	In the Dbirar zone - clay; sandstones. In the Vandam zone - tuffbreccias; tuff sandstones; lava
K-39-XXV	J_2bj	Bajocian	volcanic undiff	volcanogenic stratum of the Vandam zone. Porphyrites; tuffoporphyrites; tuff breccias; tuff sandstones; argillites. Terrigenous stratum of the eastern part of the northern slope - mudstones; sandstones
K-39-XXV	J_3t	Tithonian	sandstone shale	Ilisu formation - terrigenous flysch; Kyzylkazmin formation - sandstones; conglomerates; gravelites. Shahlag and Talistan facies - limestone
K-39-XXV	Cr_1v	Valangian	limestone minor clastics	Vabadag Formation. Limestones; marls; sandstones; clays; conglomerates
K-39-XXV	Cr_2sn_2-d	Coniacian Danian	limestone marl	marls; limestones; clays; sandstones
K-39-XXV	Cr_1ap_2+al	Aptian Albian	sandstone shale	The Khanagin; Altyagach and Kyuliinsk suites. Clay sandstone intercalations
K-39-XXV	Cr_1nc-ap_1	Valangian Aptian	limestone marl	Limestone; marl; sandstone
K-39-XXV	Pg_1s+Pg_2k	Sumgait Kun	sandstone shale	Sumgait and Kun formations - undivided Clays; sandstone; volcanic ash interlayers
K-39-XXV	N_1^2+kg+kn+N_1^3s	Karaganian-Sarmatian	sandstone shale	Clays; oil shale; sand; limestone; conglomerates
K-39-XXV	Pg_3+N_1^1	Maykop	limestone marl	Clays; marls; dolomites
K-39-XXV	N_1^3s	Sarmatian	sandstone shale	Clay; coquina
K-39-XXV	Pg_2k	Koun	sandstone shale	Clays; sandstone; volcanic ash interlayers
K-39-XXV	N_2^1pn	Pontian	sandstone minor carbonate	Clays; limestones; sands
K-39-XXV	N_2^2pr	Productive	sandstone shale	Clay; sand; gravel
K-39-XXV	N_2^3ak	Akchagyl	sandstone shale	Clay; sands
K-39-XXV	N_2^3ap	Apsheron	sandstone minor carbonate	Clays; sands; limestones; pebbles

Map Sheet	Unit Symbol	Stage(s)	Rocktype	Full description
Az500K	J_1t_1	Toarcian	sandstone shale	Toarcian lower - clay shales; aleurolites (siltstone); and sandstones
Az500K	J_1t_2	Toarcian	sandstone shale	Toarcian upper - clay shales; aleurolites (siltstones); and sandstones
Az500K	J_1p_2	Pliensbachian	sandstone shale	Pliensbachian upper - clay shales; aleurolites (siltstones); and sandstones
Az500K	J_1p_1	Pliensbachian	sandstone shale	Pliensbachian lower - clay shales; aleurolites (siltstones); and sandstones
Az500K	J_3o	Oxfordian	sandstone shale	Oxfordian (undif) - Argillites; shales; sandstones; limestones; and marls
Az500K	J_3o-t	Oxfordian Tithonian	limestone sandstone	Upper substages of Oxfordian; Kimeridgian; and Tithonian -carbonates and sandstone interbeds
Az500K	J_3o_2-t	Oxfordian Tithonian	limestone sandstone	Upper substages of Oxfordian; Kimeridgian; and Tithonian -carbonates and sandstone interbeds
Az500K	J_3o_2	Oxfordian	sandstone minor carbonate	Oxfordian - argillites; shales; sandstones; limestones; and marls
Az500K	J_2a_2	Aalenian	sandstone minor carbonate	Aalenian upper - clay shales; argillites; and sandstones with interbedded carbonate rocks
Az500K	$J_2a_1{}^2$	Aalenian	sandstone minor carbonate	Aalenian lower - clay shales; argillites; and sandstones with interbedded carbonate rocks
Az500K	J_2bt	Bathonian	sandstone shale	Bathonian - shales; argillites; aleurolites; and sandstones
Az500K	J_2b	Bajocian	volcanic undiff	Bajocian - Vandam zone - volcanic facies; porphyry
Az500K	J_2b_1	Bajocian	sandstone shale	Bajocian lower - argillites and aleurolites (siltstones); and sandstones
Az500K	J_3k (J_2k)	Callovian	sandstone shale	Callovian - shales; siltstones; and sandstones
Az500K	J_2k_2+J_3o_1	Callovian	sandstone shale	Callovian - conglomerates; gritstones; sandstones; and argillites (NE Azerbaijan?)
Az500K	J_3t	Tithonian	limestone minor clastics	Tithonian - argillites; limestone; and sandstone (Zaqatala and Qarachay);
Az500K	J_3km	Kimmeridgian	limestone	Kimmeridgian - terrigenous carbonate rocks

Map Sheet	Unit Symbol	Stage(s)	Rocktype	Full description
Az500K	K_1b+v	Berriasian Valangian	limestone	Berriasian-Valanginian - Berriasian (carbonate flysch; limestones; marls; and sandstones); Valanginian (carbonate flysch;
Az500K	K_1g	Hauterivian	shale	Hauterivian - Shale
Az500K	K_1v_1	Valanginian	limestone marl	Lower Valanginian - carbonate mudstones; marls; limestones; isolated conglomerate
Az500K	K_1v_2	Valanginian	limestone marl	Upper Valanginian - carbonates; marl (west); limestones; sandstones; conglomerates; carbonate breccia (vandam)
Az500K	K_1al	Albian	sandstone shale	Albian - shales and sandstones (lower) and shales; marls; sandstones; and limestones (upper) - in Vandam; tuffaceous rocks and interbedded siliceious limestones
Az500K	K_1br	Barremian	shale	Barremian -clay facies
Az500K	K_1a	Aptian	limestone minor clastics	Aptian - clays; marls; limestones; sandstones; shales
Az500K	K_1a_1	Aptian	limestone sandstone	Lower Aptian - clays and interbedded marls (vandam - siltstones; limestones; sandstones; shales)
Az500K	K_1a_2	Aptian	limestone	Upper Aptian - carbonate shales (vandam - carbonate sandstones; sandy limstones; and mudstones)
Az500K	K_2s (volc)	Cenomanian	volcanic undiff	Cenomanian - assumed to be tuffs? No description in Vandam zones

Table 1: Summary of translated geologic map units and the simplified lithology for each unit. Stages are global for Mesozoic periods and either global or regional stages for Cenozoic periods depending on original source.

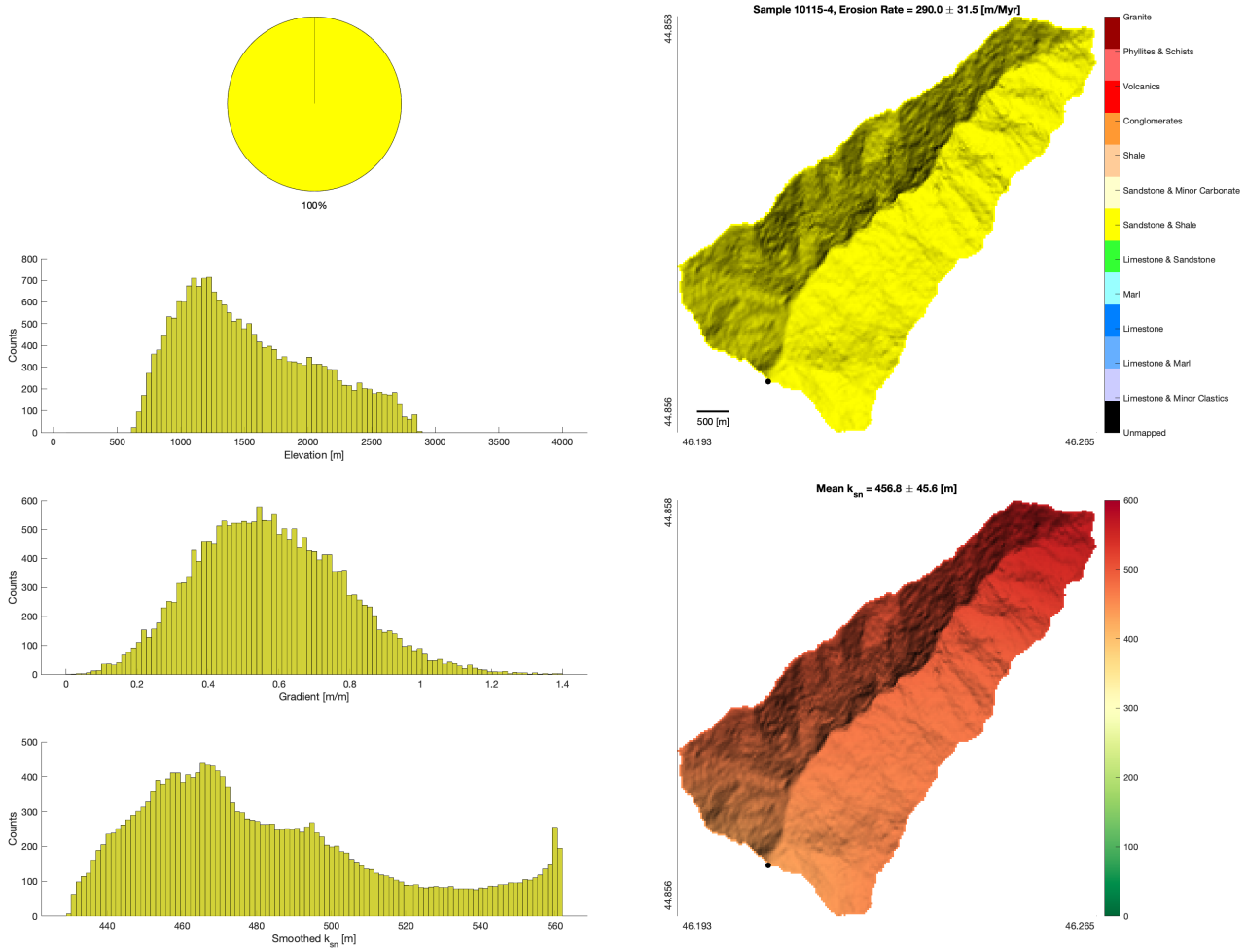

Figure 1: Relation between topography and lithology for sample 10115-4. Left column shows, from top to bottom; percentage of catchment occupied by different lithologies (keyed to color bar in right), histogram of elevation and portion of each elevation bin represented by a given lithology, histogram of hillslope gradient and portion of each gradient bin represented by a given lithology, and histogram of smoothed k_{sn} and portion of each k_{sn} bin represented by a given lithology. Right column shows distribution of lithology within the catchment (top) and smoothed k_{sn} (bottom).

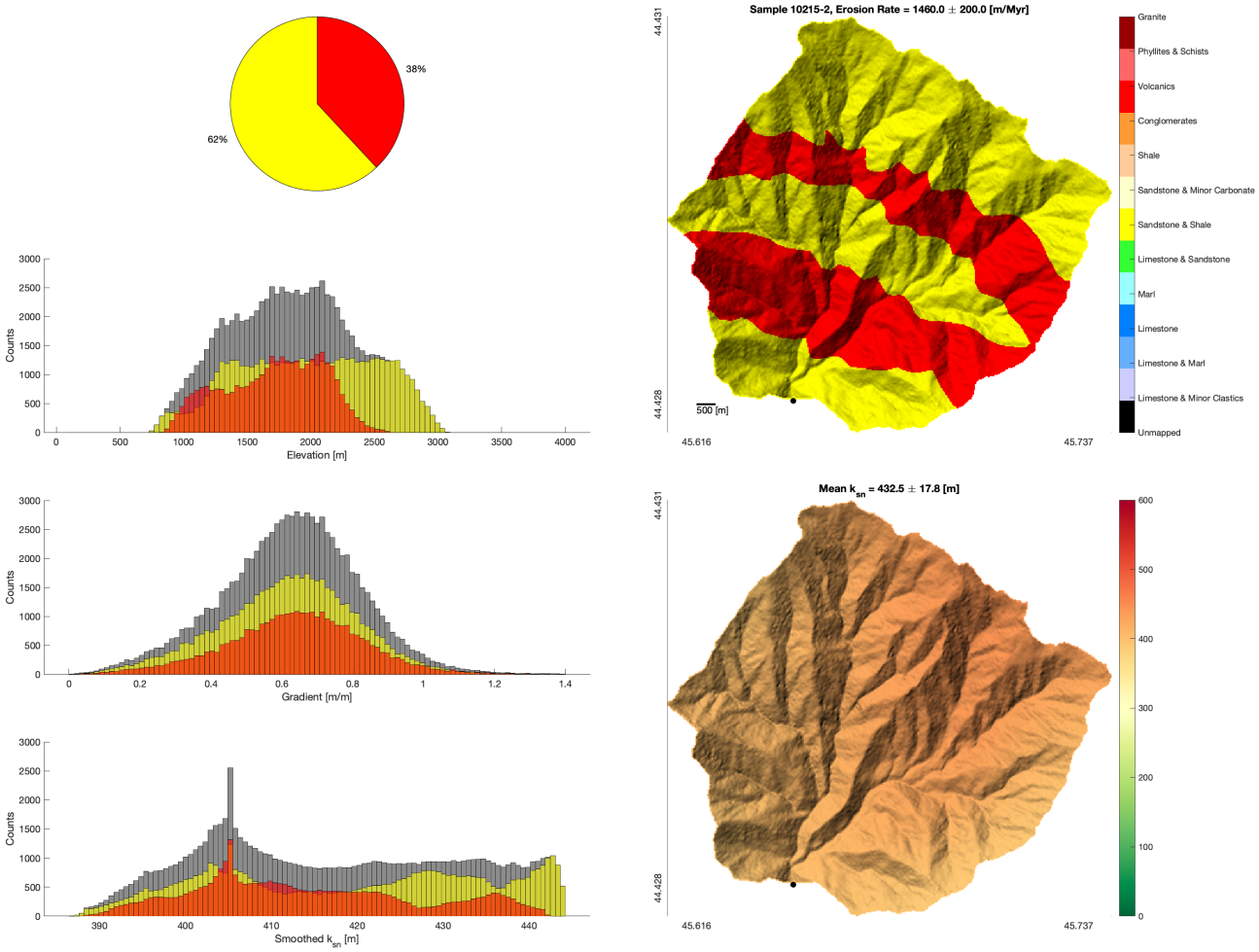

Figure 2: Relation between topography and lithology for sample 10215-2. Left column shows, from top to bottom; percentage of catchment occupied by different lithologies (keyed to color bar in right), histogram of elevation and portion of each elevation bin represented by a given lithology, histogram of hillslope gradient and portion of each gradient bin represented by a given lithology, and histogram of smoothed k_{sn} and portion of each k_{sn} bin represented by a given lithology. Right column shows distribution of lithology within the catchment (top) and smoothed k_{sn} (bottom).

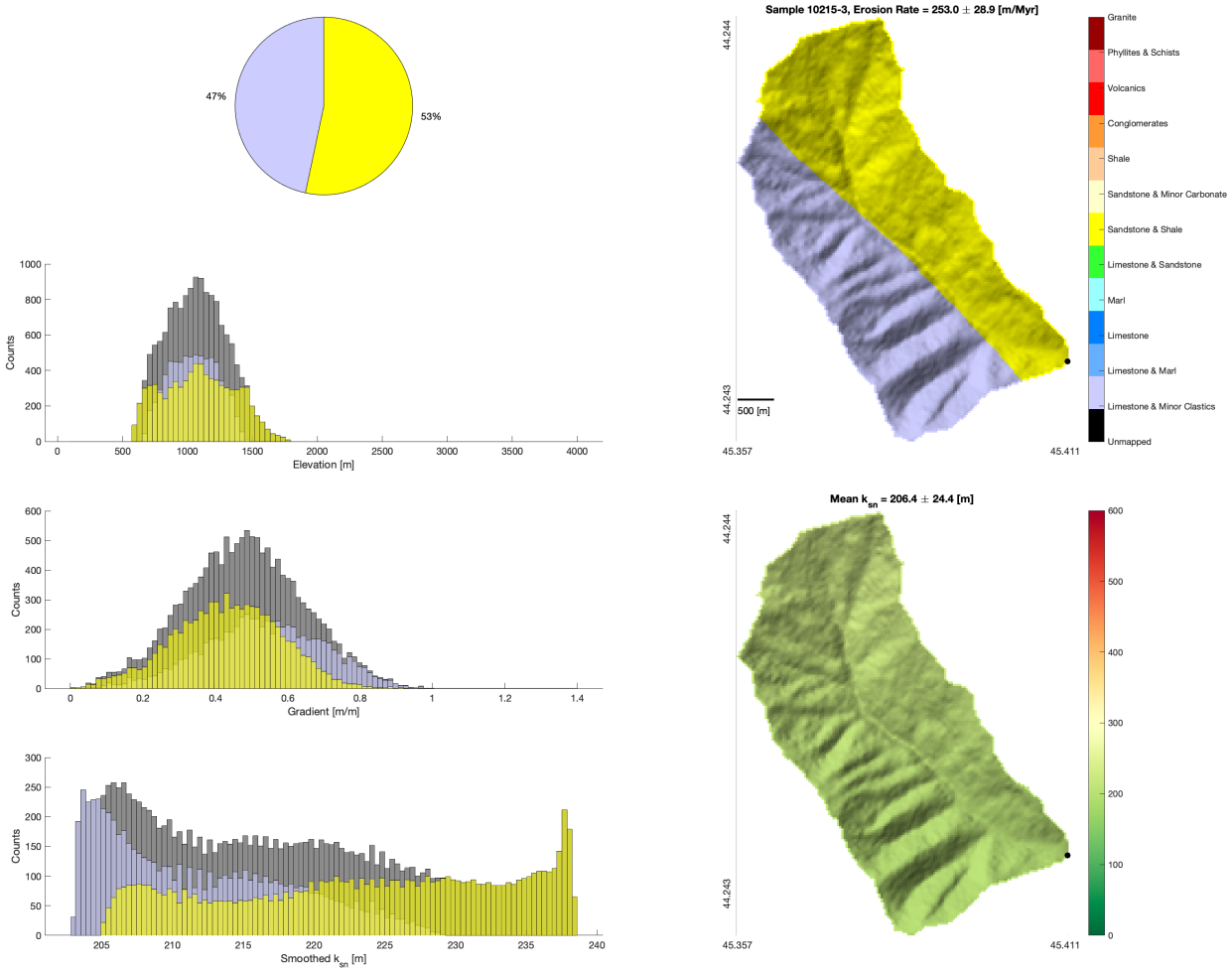

Figure 3: Relation between topography and lithology for sample 10215-3. Left column shows, from top to bottom; percentage of catchment occupied by different lithologies (keyed to color bar in right), histogram of elevation and portion of each elevation bin represented by a given lithology, histogram of hillslope gradient and portion of each gradient bin represented by a given lithology, and histogram of smoothed k_{sn} and portion of each k_{sn} bin represented by a given lithology. Right column shows distribution of lithology within the catchment (top) and smoothed k_{sn} (bottom).

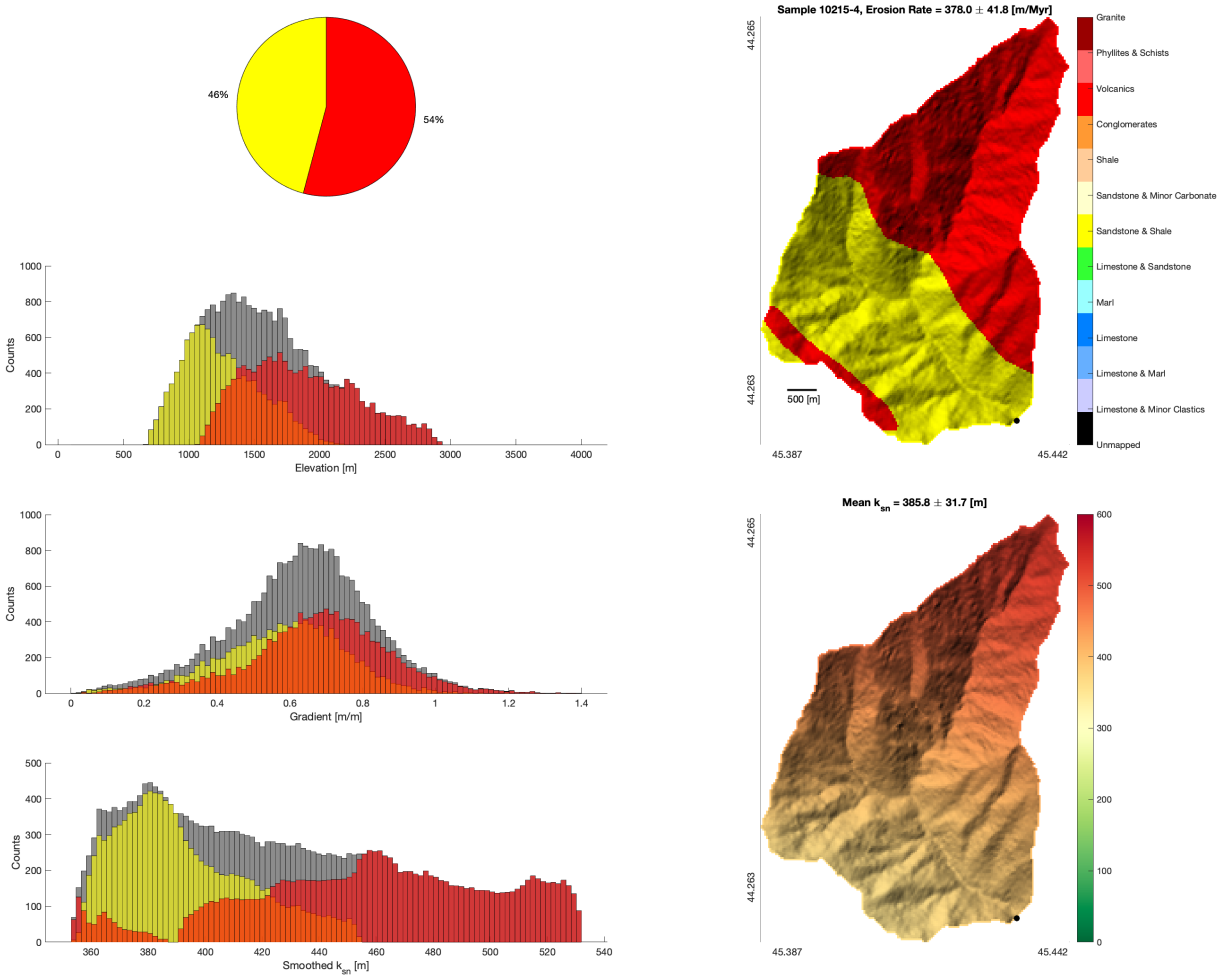

Figure 4: Relation between topography and lithology for sample 10215-4. Left column shows, from top to bottom; percentage of catchment occupied by different lithologies (keyed to color bar in right), histogram of elevation and portion of each elevation bin represented by a given lithology, histogram of hillslope gradient and portion of each gradient bin represented by a given lithology, and histogram of smoothed k_{sn} and portion of each k_{sn} bin represented by a given lithology. Right column shows distribution of lithology within the catchment (top) and smoothed k_{sn} (bottom).

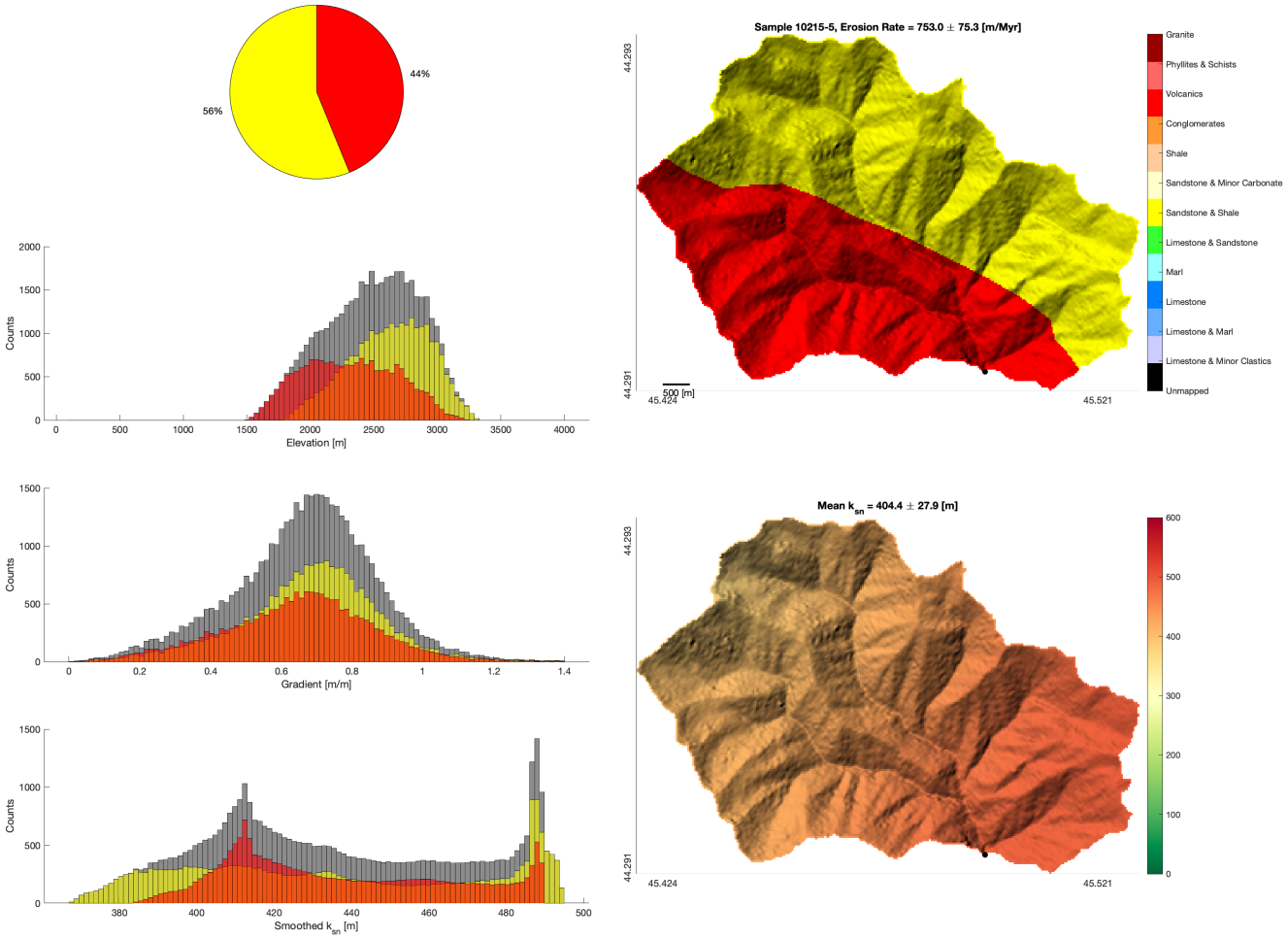

Figure 5: Relation between topography and lithology for sample 10215-5. Left column shows, from top to bottom; percentage of catchment occupied by different lithologies (keyed to color bar in right), histogram of elevation and portion of each elevation bin represented by a given lithology, histogram of hillslope gradient and portion of each gradient bin represented by a given lithology, and histogram of smoothed k_{sn} and portion of each k_{sn} bin represented by a given lithology. Right column shows distribution of lithology within the catchment (top) and smoothed k_{sn} (bottom).

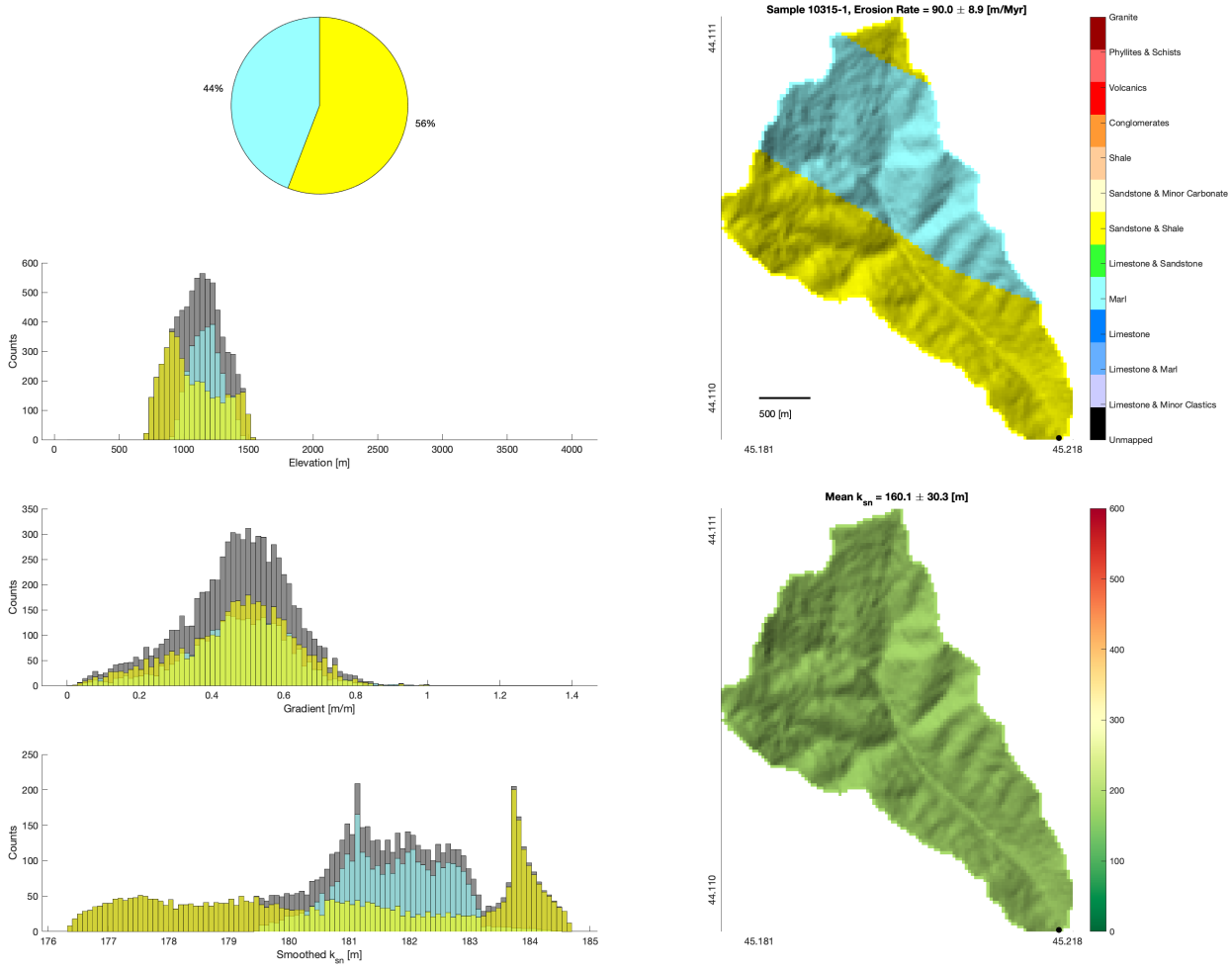

Figure 6: Relation between topography and lithology for sample 10315-1. Left column shows, from top to bottom; percentage of catchment occupied by different lithologies (keyed to color bar in right), histogram of elevation and portion of each elevation bin represented by a given lithology, histogram of hillslope gradient and portion of each gradient bin represented by a given lithology, and histogram of smoothed k_{sn} and portion of each k_{sn} bin represented by a given lithology. Right column shows distribution of lithology within the catchment (top) and smoothed k_{sn} (bottom).

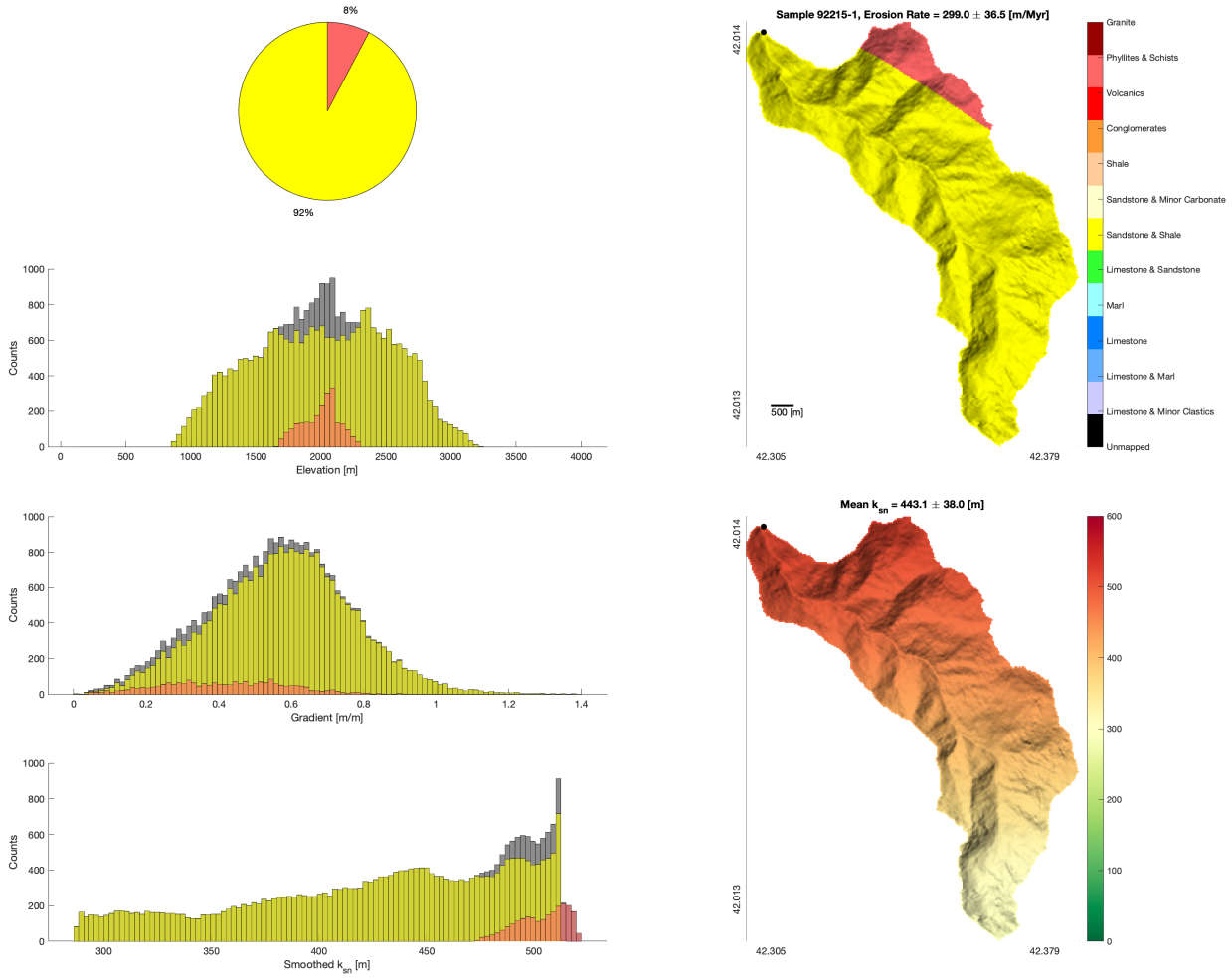

Figure 7: Relation between topography and lithology for sample 92215-1. Left column shows, from top to bottom; percentage of catchment occupied by different lithologies (keyed to color bar in right), histogram of elevation and portion of each elevation bin represented by a given lithology, histogram of hillslope gradient and portion of each gradient bin represented by a given lithology, and histogram of smoothed k_{sn} and portion of each k_{sn} bin represented by a given lithology. Right column shows distribution of lithology within the catchment (top) and smoothed k_{sn} (bottom).

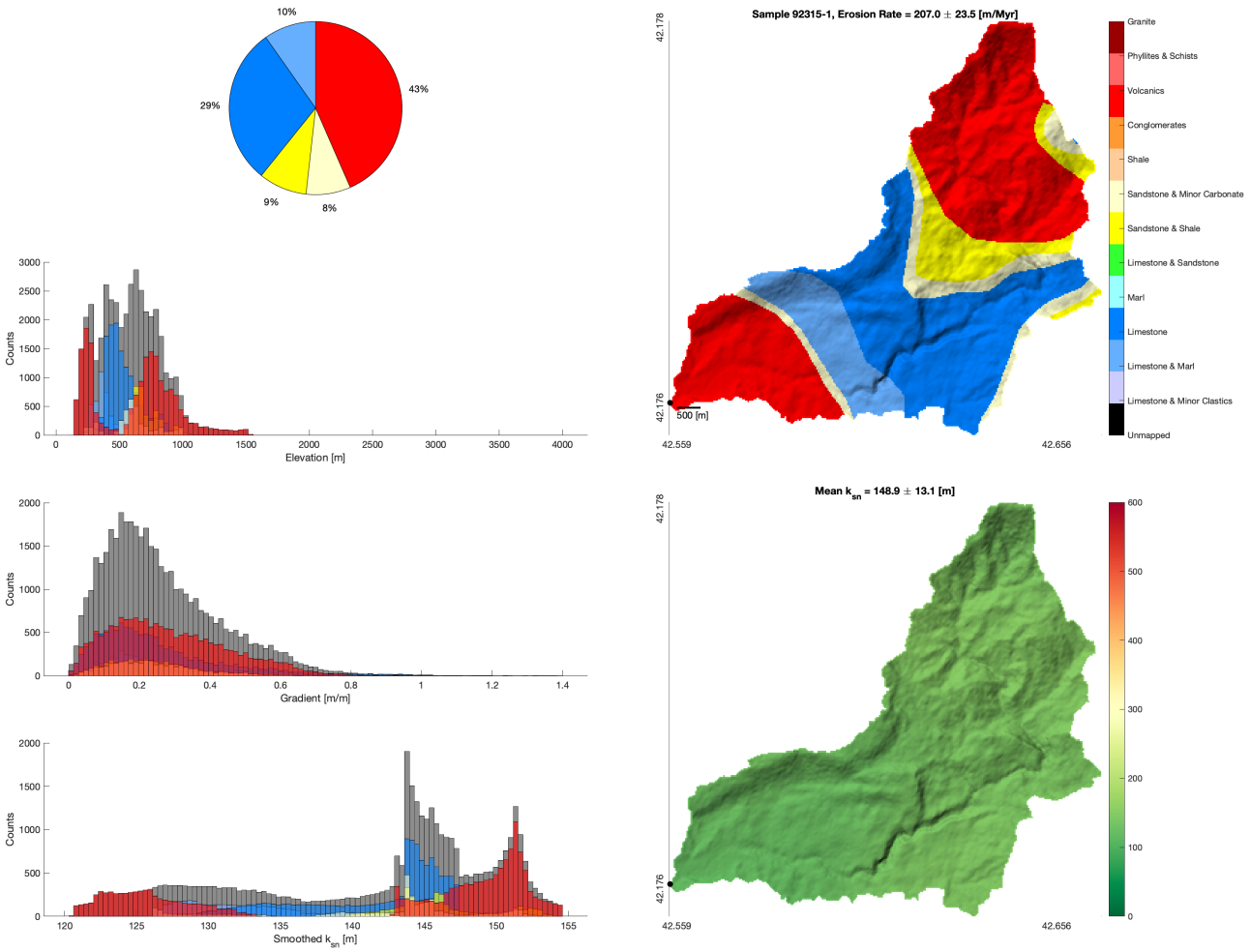

Figure 8: Relation between topography and lithology for sample 92315-1. Left column shows, from top to bottom; percentage of catchment occupied by different lithologies (keyed to color bar in right), histogram of elevation and portion of each elevation bin represented by a given lithology, histogram of hillslope gradient and portion of each gradient bin represented by a given lithology, and histogram of smoothed k_{sn} and portion of each k_{sn} bin represented by a given lithology. Right column shows distribution of lithology within the catchment (top) and smoothed k_{sn} (bottom).

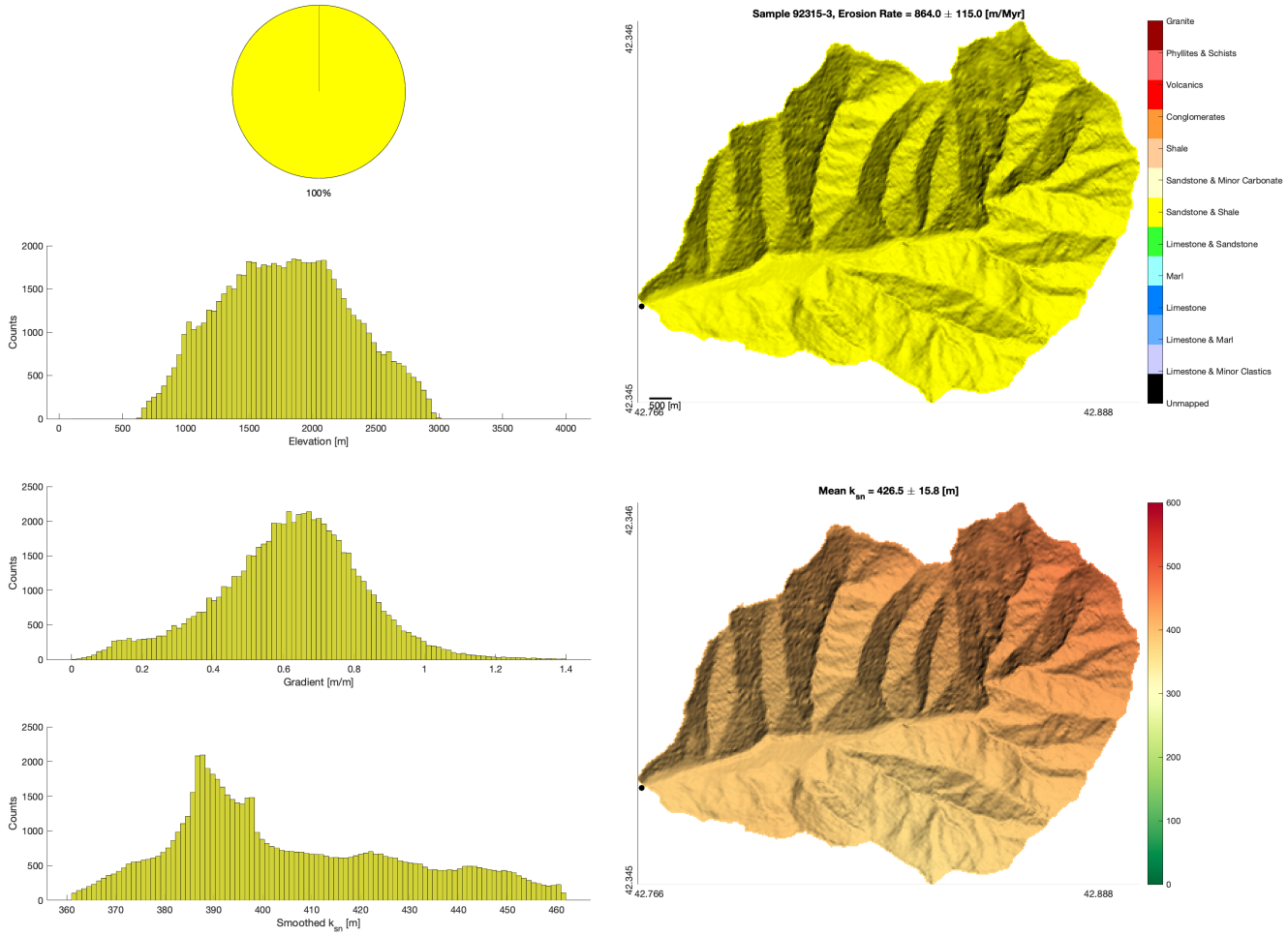

Figure 9: Relation between topography and lithology for sample 92315-3. Left column shows, from top to bottom; percentage of catchment occupied by different lithologies (keyed to color bar in right), histogram of elevation and portion of each elevation bin represented by a given lithology, histogram of hillslope gradient and portion of each gradient bin represented by a given lithology, and histogram of smoothed k_{sn} and portion of each k_{sn} bin represented by a given lithology. Right column shows distribution of lithology within the catchment (top) and smoothed k_{sn} (bottom).

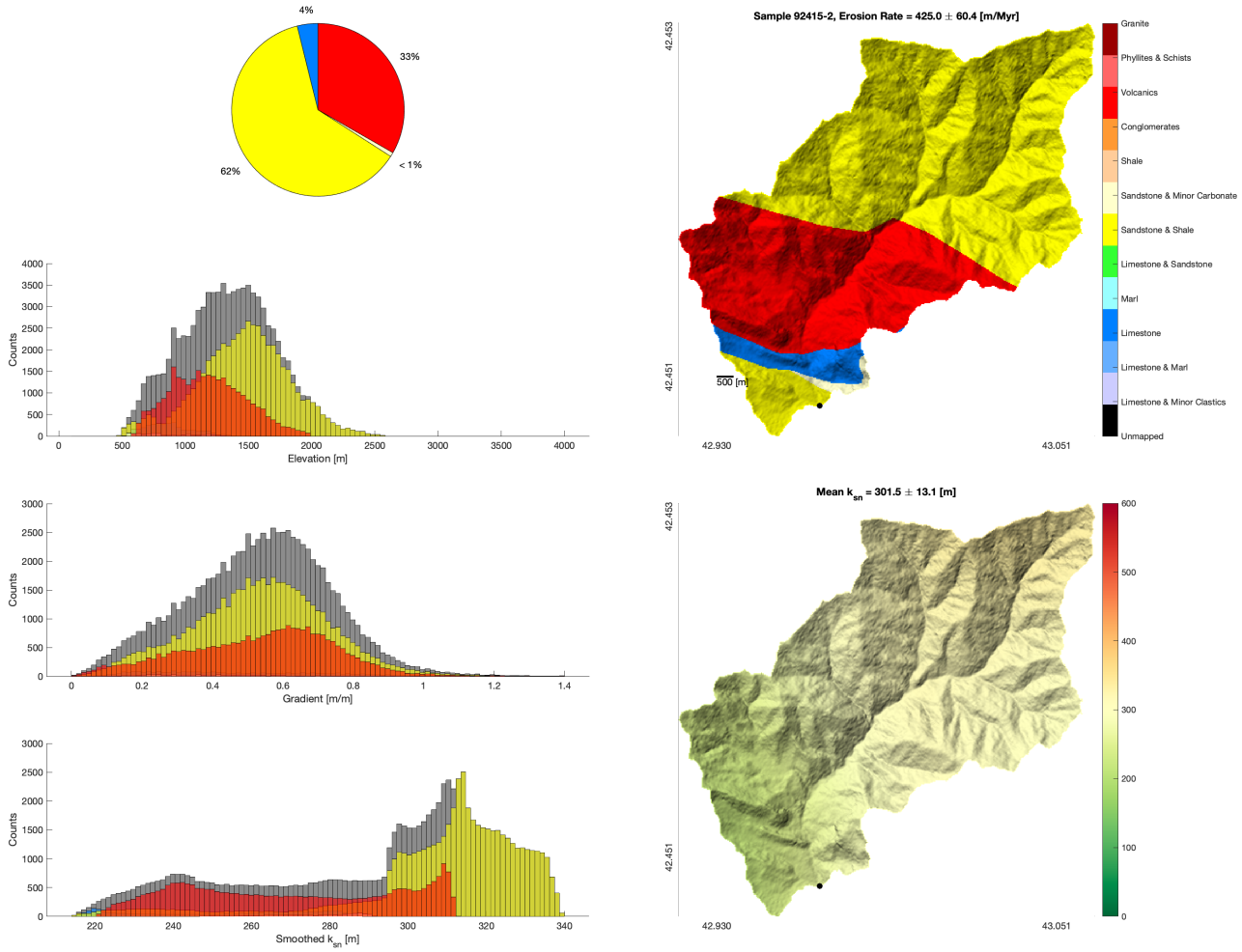

Figure 10: Relation between topography and lithology for sample 92415-2. Left column shows, from top to bottom; percentage of catchment occupied by different lithologies (keyed to color bar in right), histogram of elevation and portion of each elevation bin represented by a given lithology, histogram of hillslope gradient and portion of each gradient bin represented by a given lithology, and histogram of smoothed k_{sn} and portion of each k_{sn} bin represented by a given lithology. Right column shows distribution of lithology within the catchment (top) and smoothed k_{sn} (bottom).

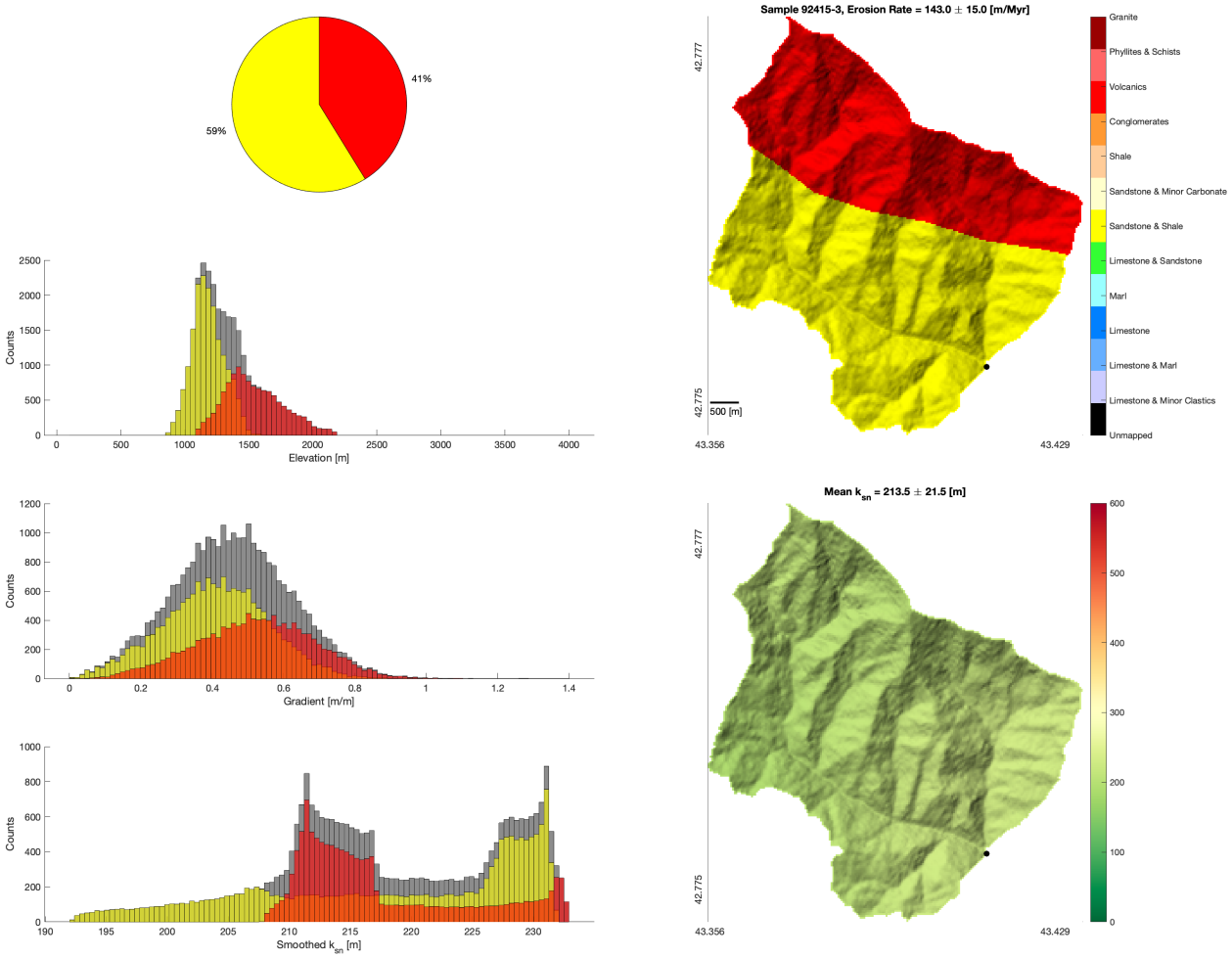

Figure 11: Relation between topography and lithology for sample 92415-3. Left column shows, from top to bottom; percentage of catchment occupied by different lithologies (keyed to color bar in right), histogram of elevation and portion of each elevation bin represented by a given lithology, histogram of hillslope gradient and portion of each gradient bin represented by a given lithology, and histogram of smoothed k_{sn} and portion of each k_{sn} bin represented by a given lithology. Right column shows distribution of lithology within the catchment (top) and smoothed k_{sn} (bottom).

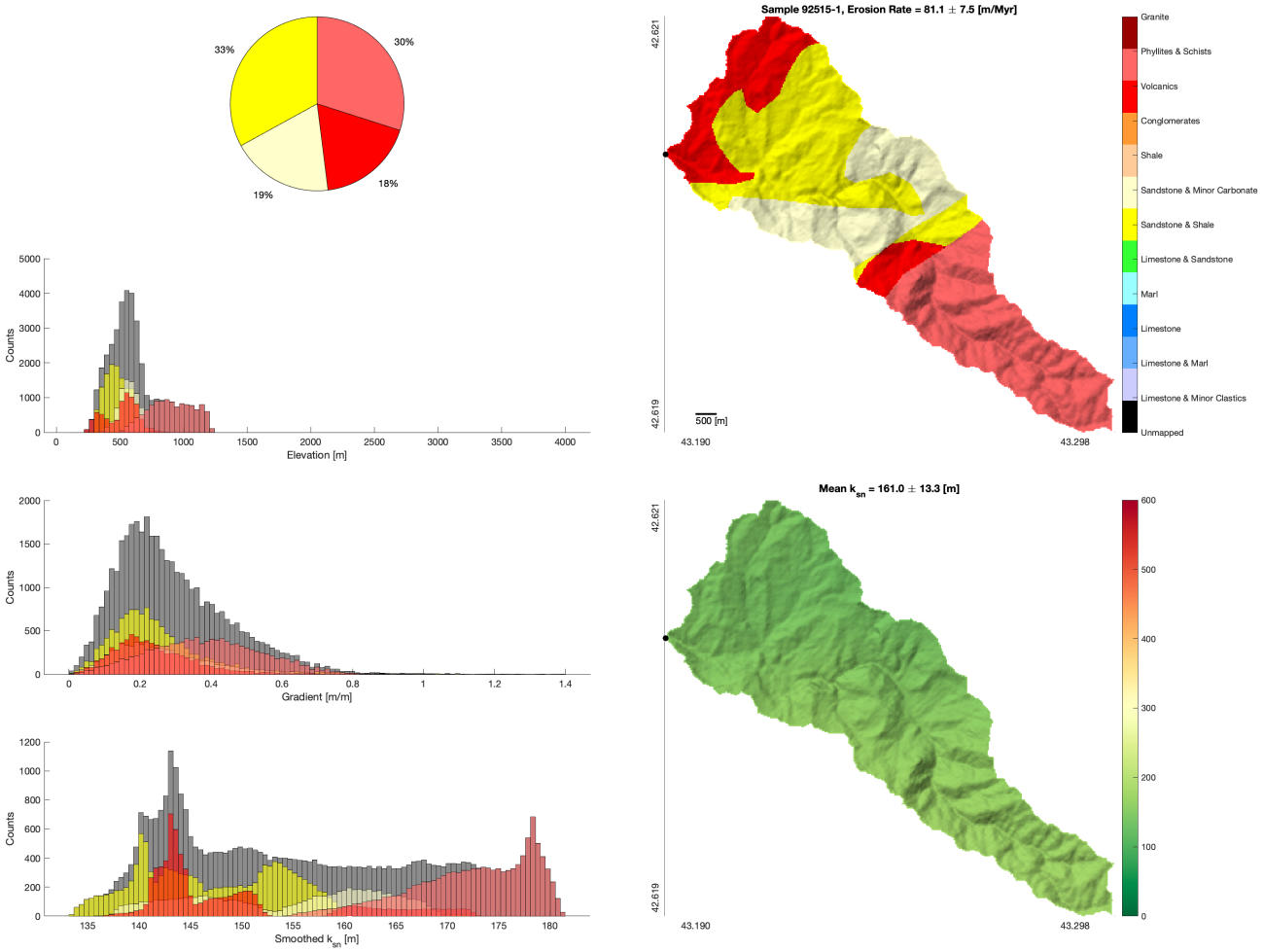

Figure 12: Relation between topography and lithology for sample 92515-1.Left column shows, from top to bottom; percentage of catchment occupied by different lithologies (keyed to color bar in right), histogram of elevation and portion of each elevation bin represented by a given lithology, histogram of hillslope gradient and portion of each gradient bin represented by a given lithology, and histogram of smoothed k_{sn} and portion of each k_{sn} bin represented by a given lithology. Right column shows distribution of lithology within the catchment (top) and smoothed k_{sn} (bottom).

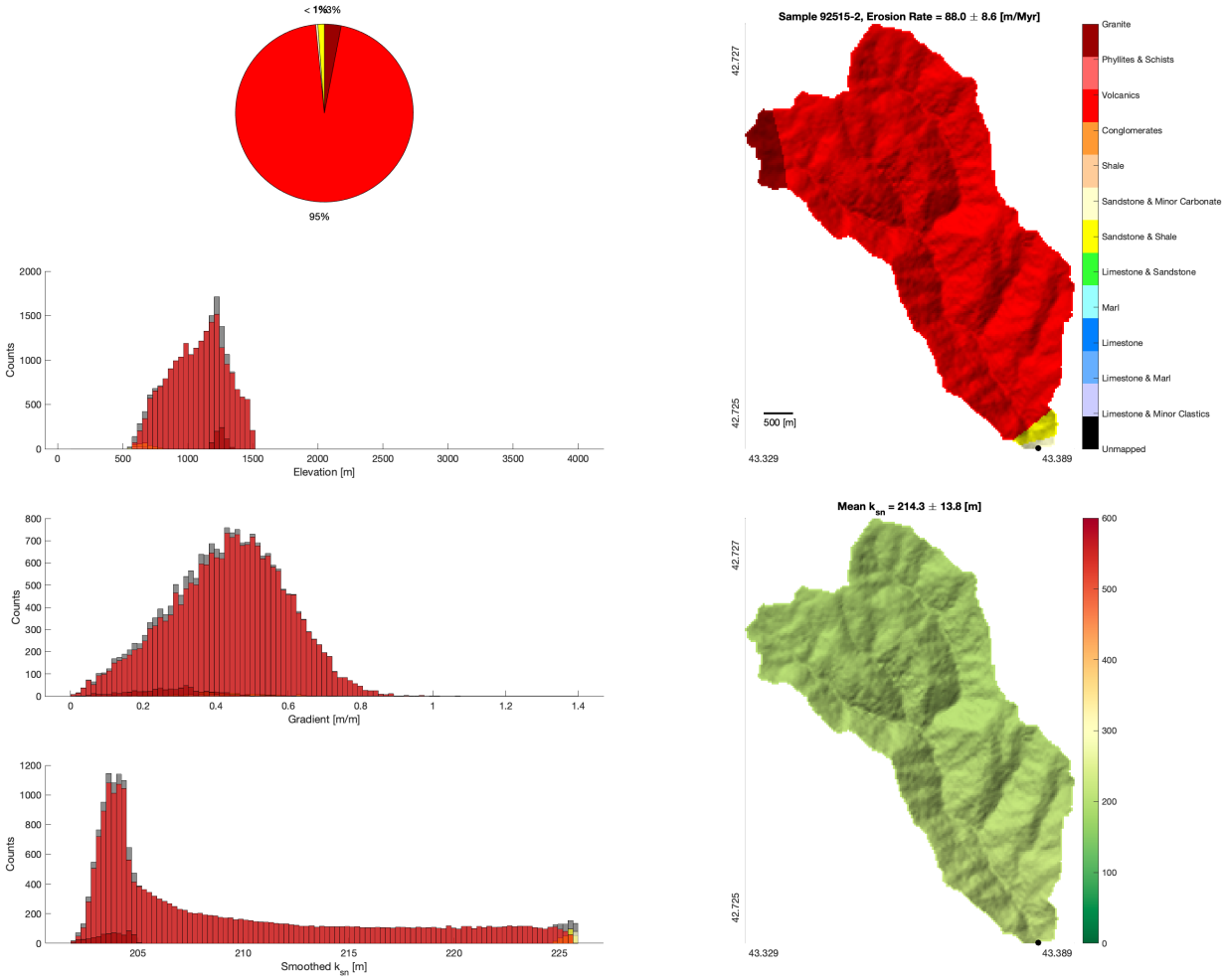

Figure 13: Relation between topography and lithology for sample 92515-2. Left column shows, from top to bottom; percentage of catchment occupied by different lithologies (keyed to color bar in right), histogram of elevation and portion of each elevation bin represented by a given lithology, histogram of hillslope gradient and portion of each gradient bin represented by a given lithology, and histogram of smoothed k_{sn} and portion of each k_{sn} bin represented by a given lithology. Right column shows distribution of lithology within the catchment (top) and smoothed k_{sn} (bottom).

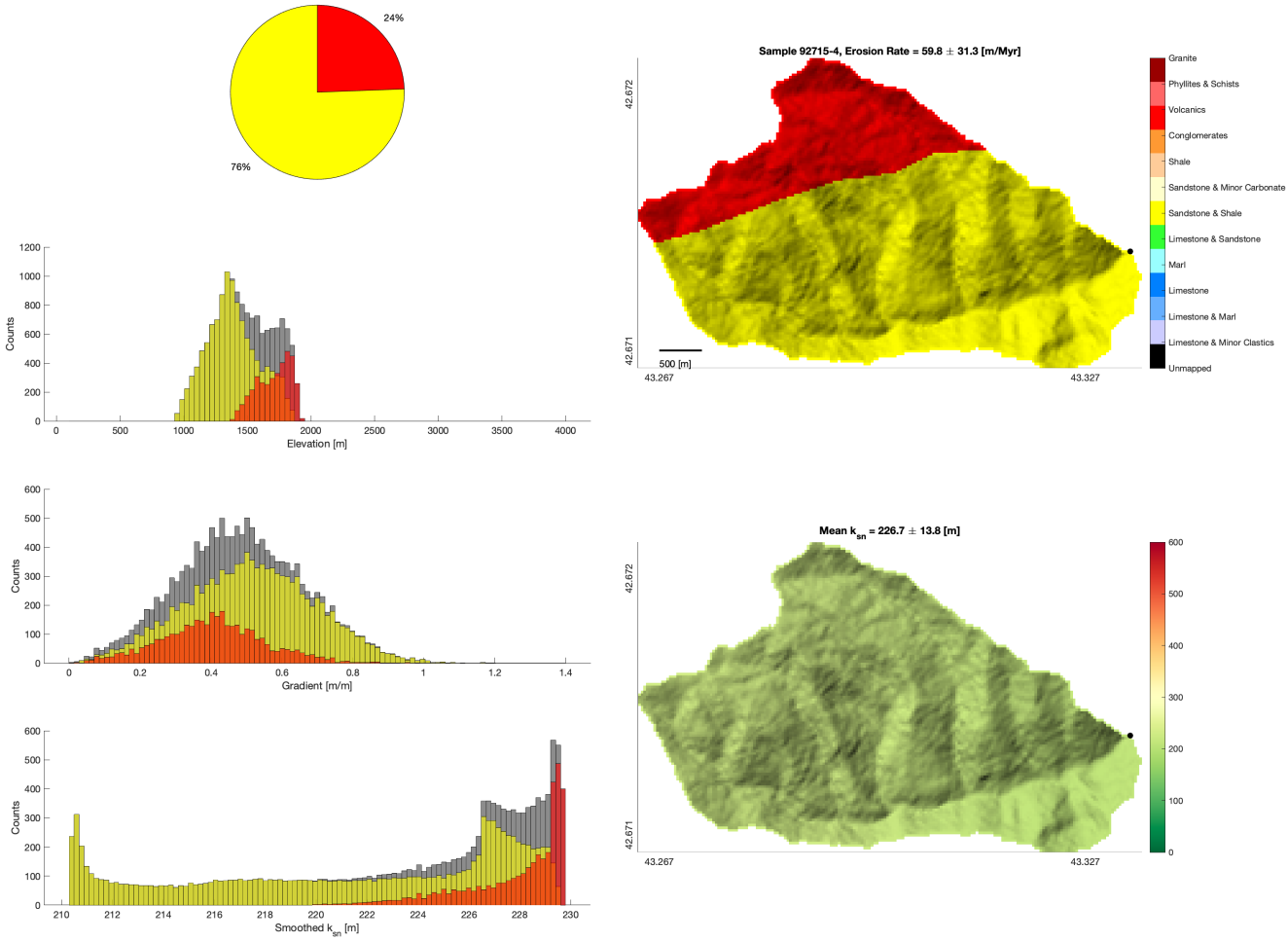

Figure 14: Relation between topography and lithology for sample 92715-4. Left column shows, from top to bottom; percentage of catchment occupied by different lithologies (keyed to color bar in right), histogram of elevation and portion of each elevation bin represented by a given lithology, histogram of hillslope gradient and portion of each gradient bin represented by a given lithology, and histogram of smoothed k_{sn} and portion of each k_{sn} bin represented by a given lithology. Right column shows distribution of lithology within the catchment (top) and smoothed k_{sn} (bottom).

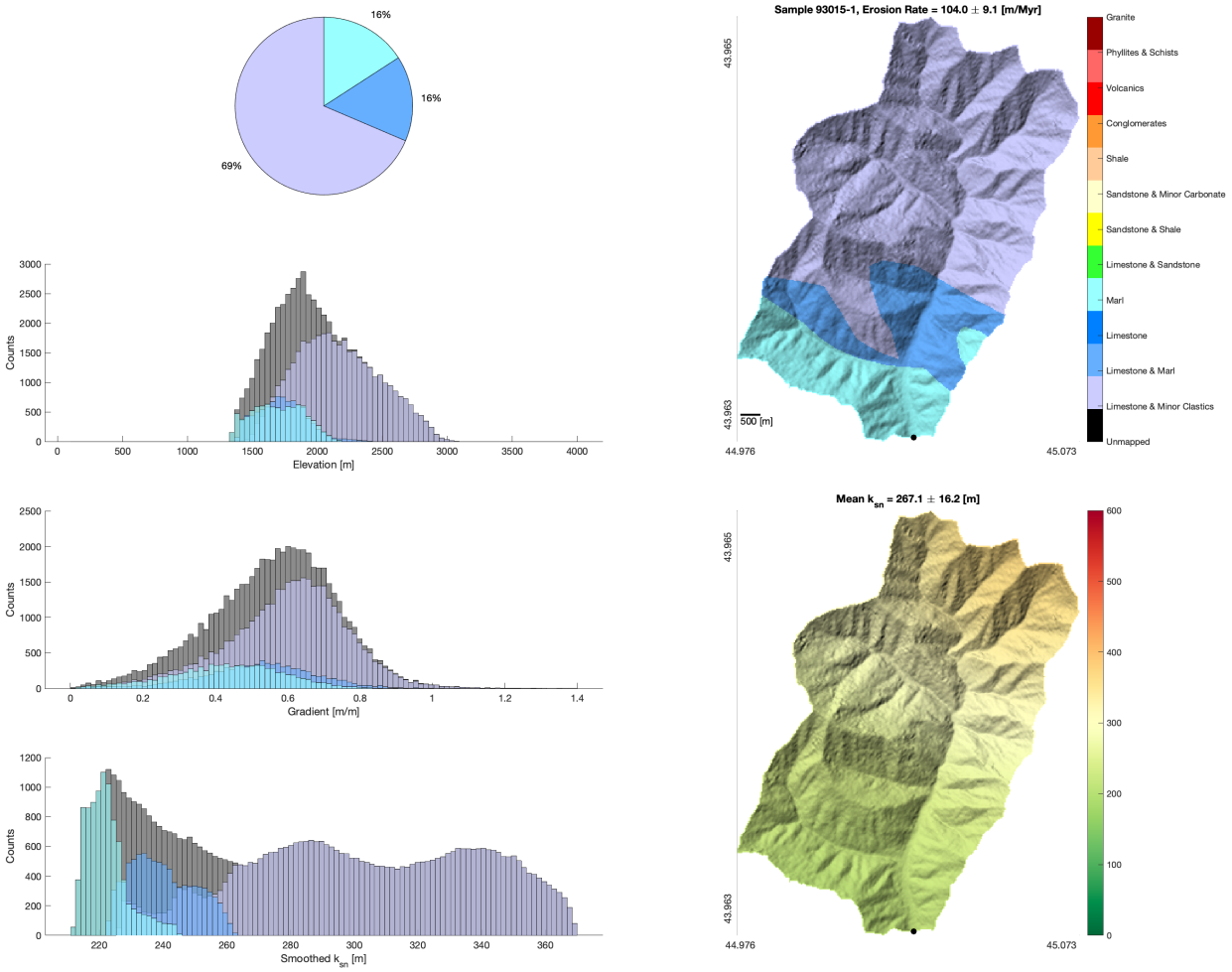

Figure 15: Relation between topography and lithology for sample 93015-1. Left column shows, from top to bottom; percentage of catchment occupied by different lithologies (keyed to color bar in right), histogram of elevation and portion of each elevation bin represented by a given lithology, histogram of hillslope gradient and portion of each gradient bin represented by a given lithology, and histogram of smoothed k_{sn} and portion of each k_{sn} bin represented by a given lithology. Right column shows distribution of lithology within the catchment (top) and smoothed k_{sn} (bottom).

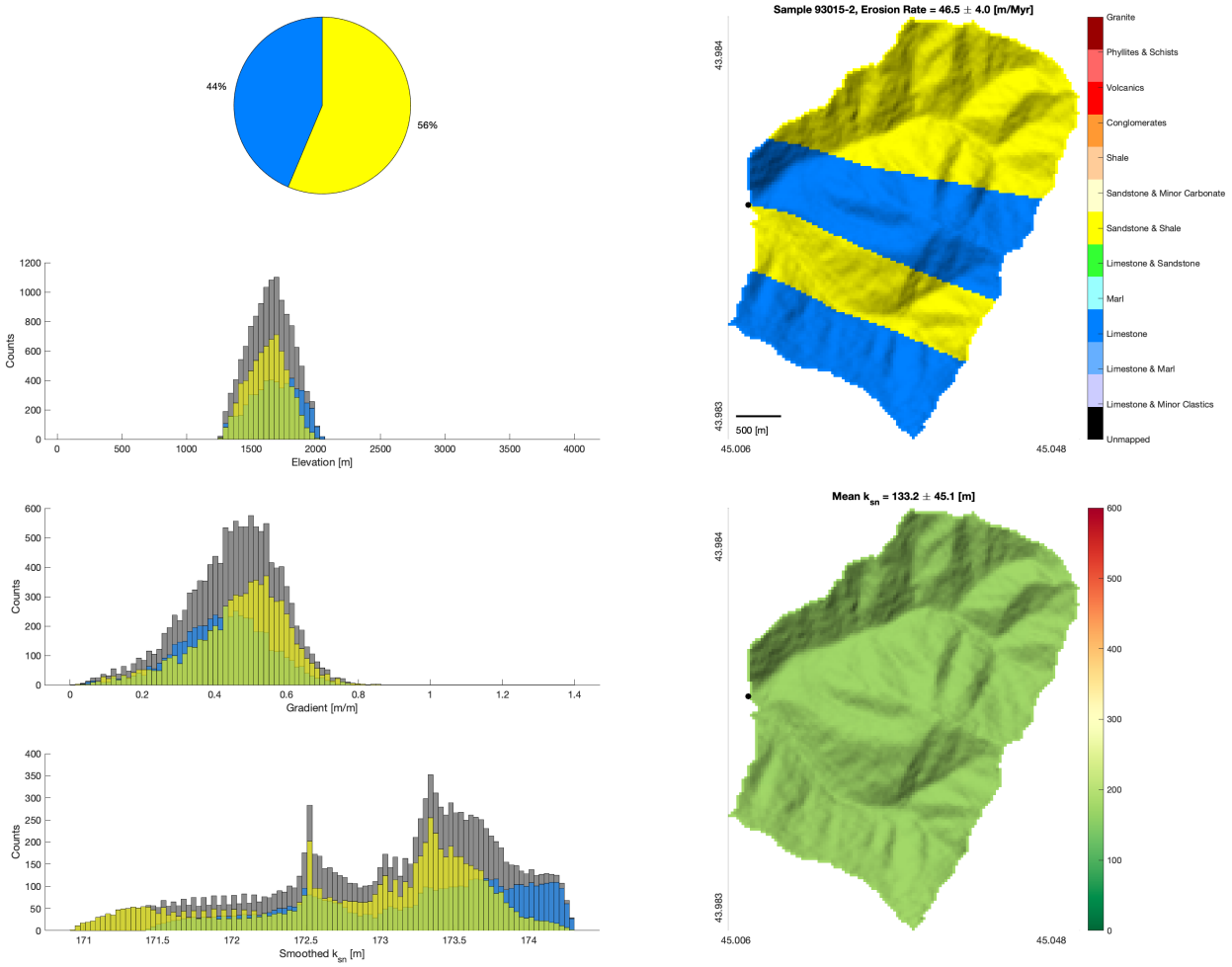

Figure 16: Relation between topography and lithology for sample 93015-2. Left column shows, from top to bottom; percentage of catchment occupied by different lithologies (keyed to color bar in right), histogram of elevation and portion of each elevation bin represented by a given lithology, histogram of hillslope gradient and portion of each gradient bin represented by a given lithology, and histogram of smoothed k_{sn} and portion of each k_{sn} bin represented by a given lithology. Right column shows distribution of lithology within the catchment (top) and smoothed k_{sn} (bottom).

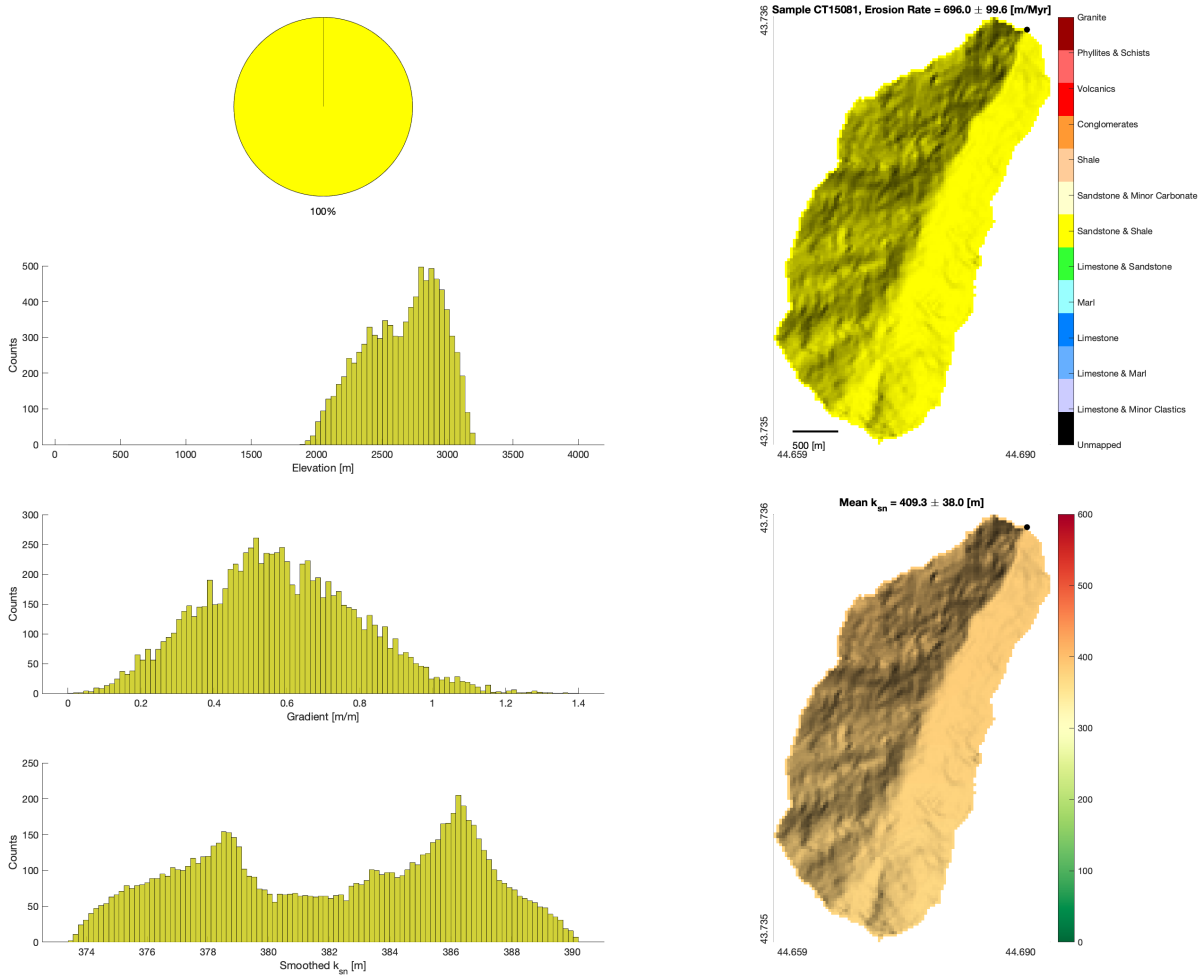

Figure 17: Relation between topography and lithology for sample CT15081. Left column shows, from top to bottom; percentage of catchment occupied by different lithologies (keyed to color bar in right), histogram of elevation and portion of each elevation bin represented by a given lithology, histogram of hillslope gradient and portion of each gradient bin represented by a given lithology, and histogram of smoothed k_{sn} and portion of each k_{sn} bin represented by a given lithology. Right column shows distribution of lithology within the catchment (top) and smoothed k_{sn} (bottom).

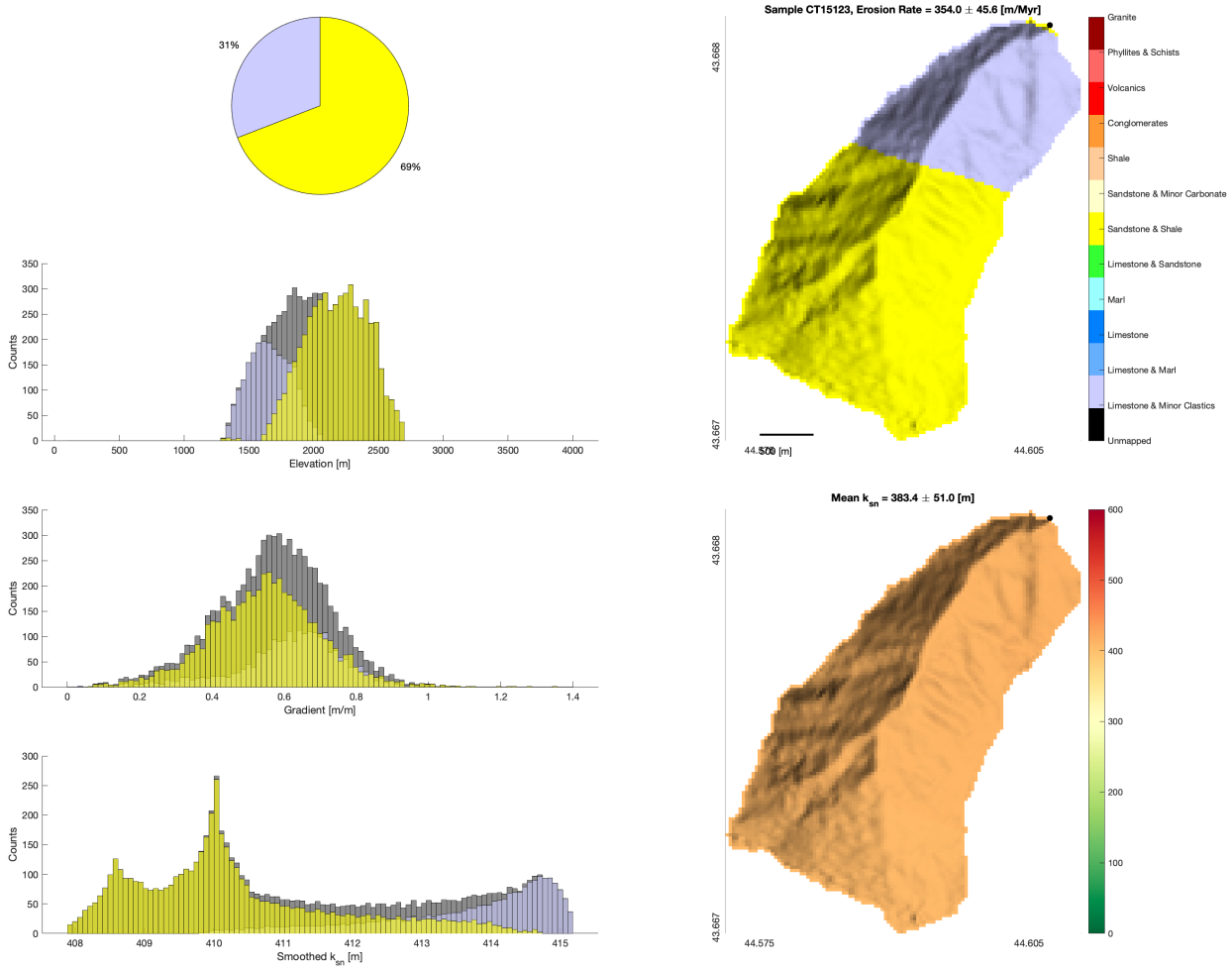

Figure 18: Relation between topography and lithology for sample CT15123. Left column shows, from top to bottom; percentage of catchment occupied by different lithologies (keyed to color bar in right), histogram of elevation and portion of each elevation bin represented by a given lithology, histogram of hillslope gradient and portion of each gradient bin represented by a given lithology, and histogram of smoothed k_{sn} and portion of each k_{sn} bin represented by a given lithology. Right column shows distribution of lithology within the catchment (top) and smoothed k_{sn} (bottom).

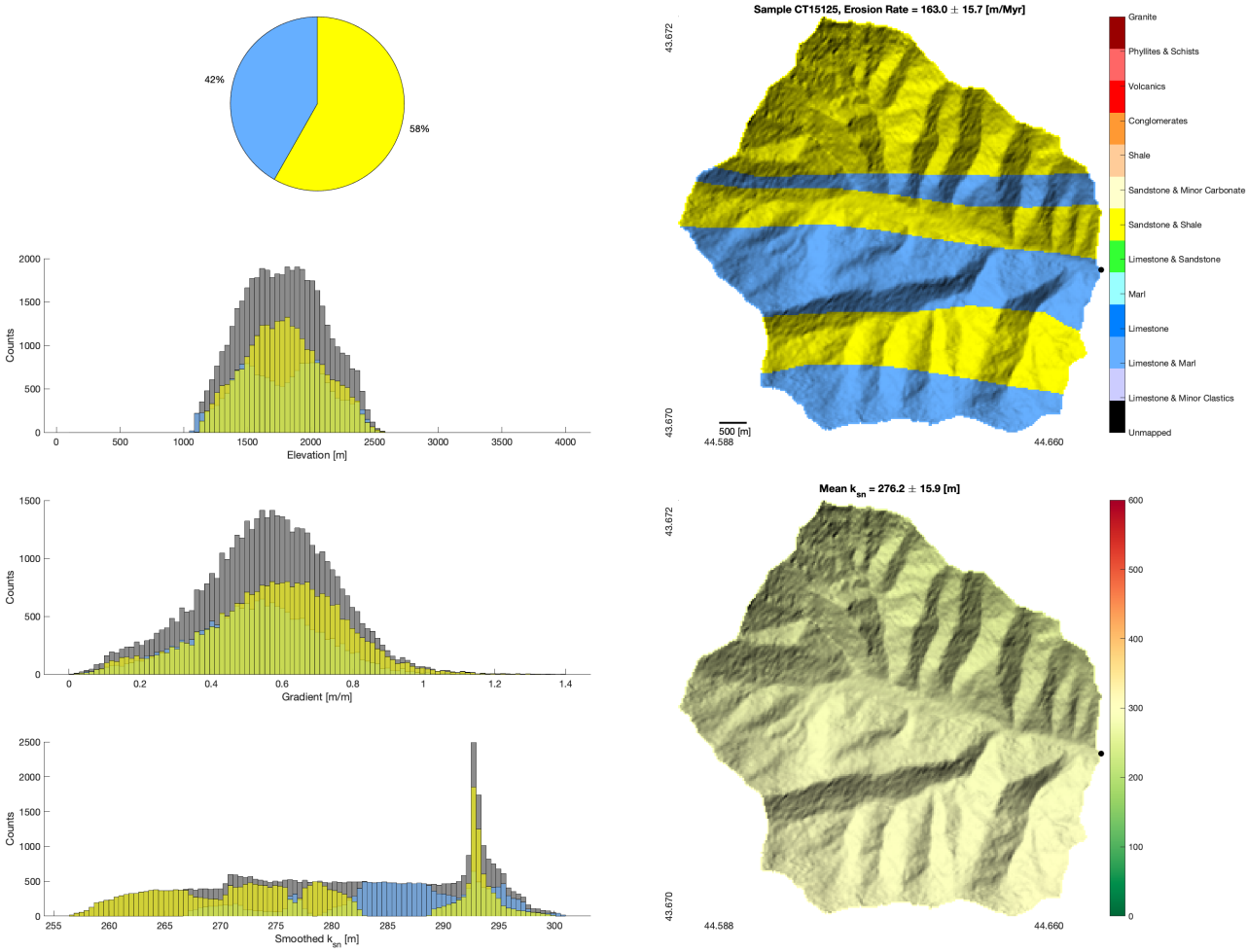

Figure 19: Relation between topography and lithology for sample CT15125. Left column shows, from top to bottom; percentage of catchment occupied by different lithologies (keyed to color bar in right), histogram of elevation and portion of each elevation bin represented by a given lithology, histogram of hillslope gradient and portion of each gradient bin represented by a given lithology, and histogram of smoothed k_{sn} and portion of each k_{sn} bin represented by a given lithology. Right column shows distribution of lithology within the catchment (top) and smoothed k_{sn} (bottom).

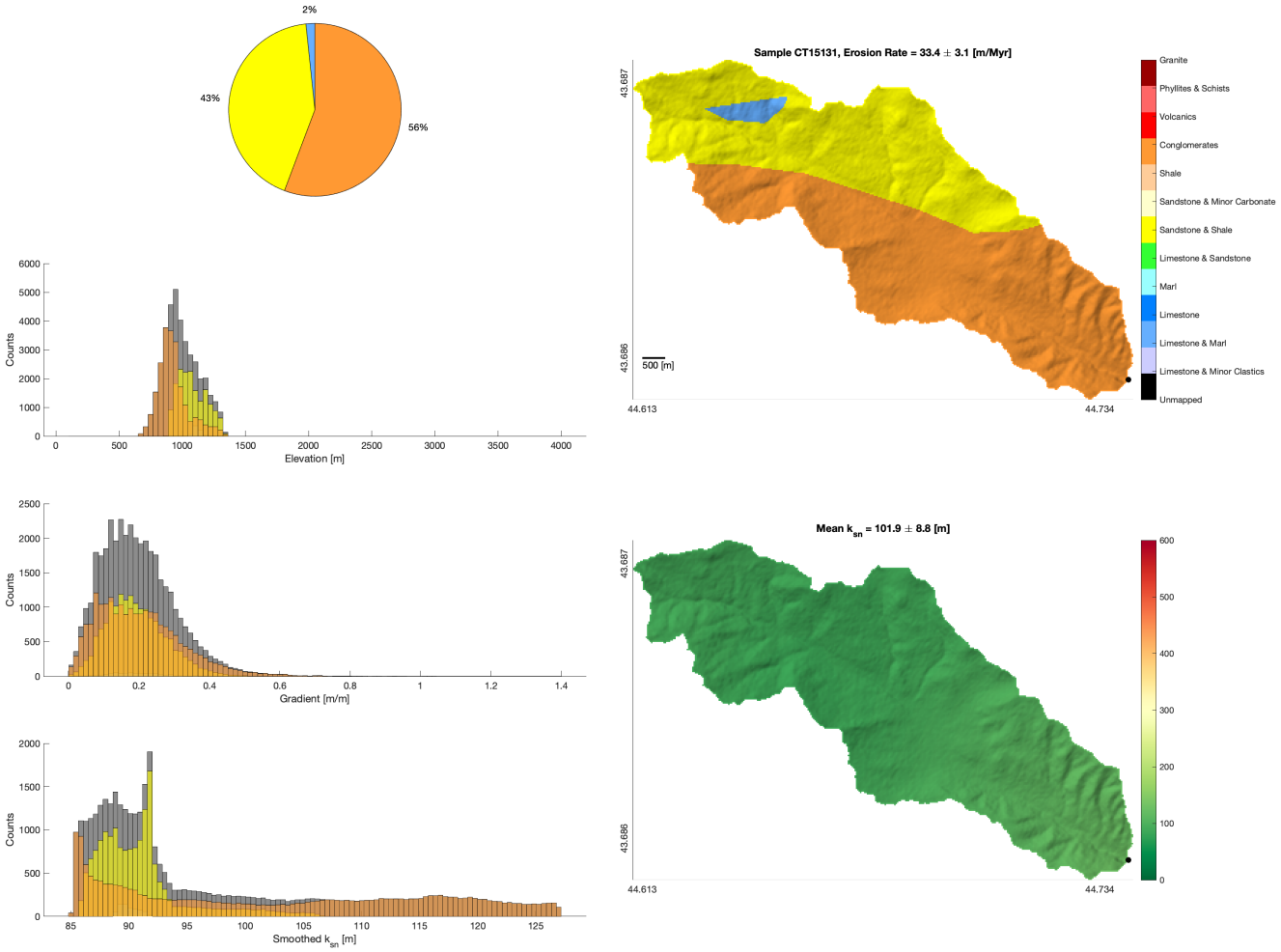

Figure 20: Relation between topography and lithology for sample CT15131. Left column shows, from top to bottom; percentage of catchment occupied by different lithologies (keyed to color bar in right), histogram of elevation and portion of each elevation bin represented by a given lithology, histogram of hillslope gradient and portion of each gradient bin represented by a given lithology, and histogram of smoothed k_{sn} and portion of each k_{sn} bin represented by a given lithology. Right column shows distribution of lithology within the catchment (top) and smoothed k_{sn} (bottom).

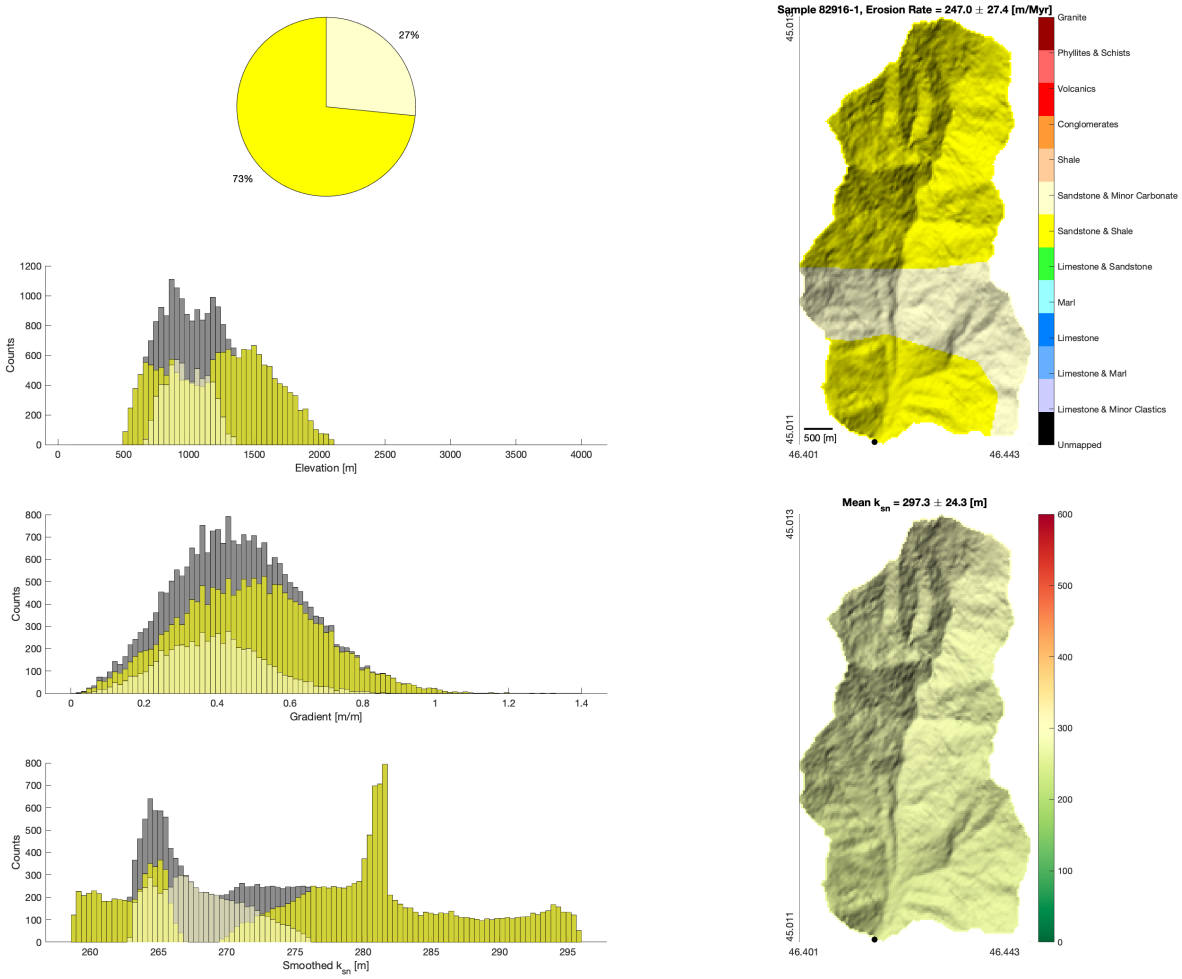

Figure 21: Relation between topography and lithology for sample 82916-1. Left column shows, from top to bottom; percentage of catchment occupied by different lithologies (keyed to color bar in right), histogram of elevation and portion of each elevation bin represented by a given lithology, histogram of hillslope gradient and portion of each gradient bin represented by a given lithology, and histogram of smoothed k_{sn} and portion of each k_{sn} bin represented by a given lithology. Right column shows distribution of lithology within the catchment (top) and smoothed k_{sn} (bottom).

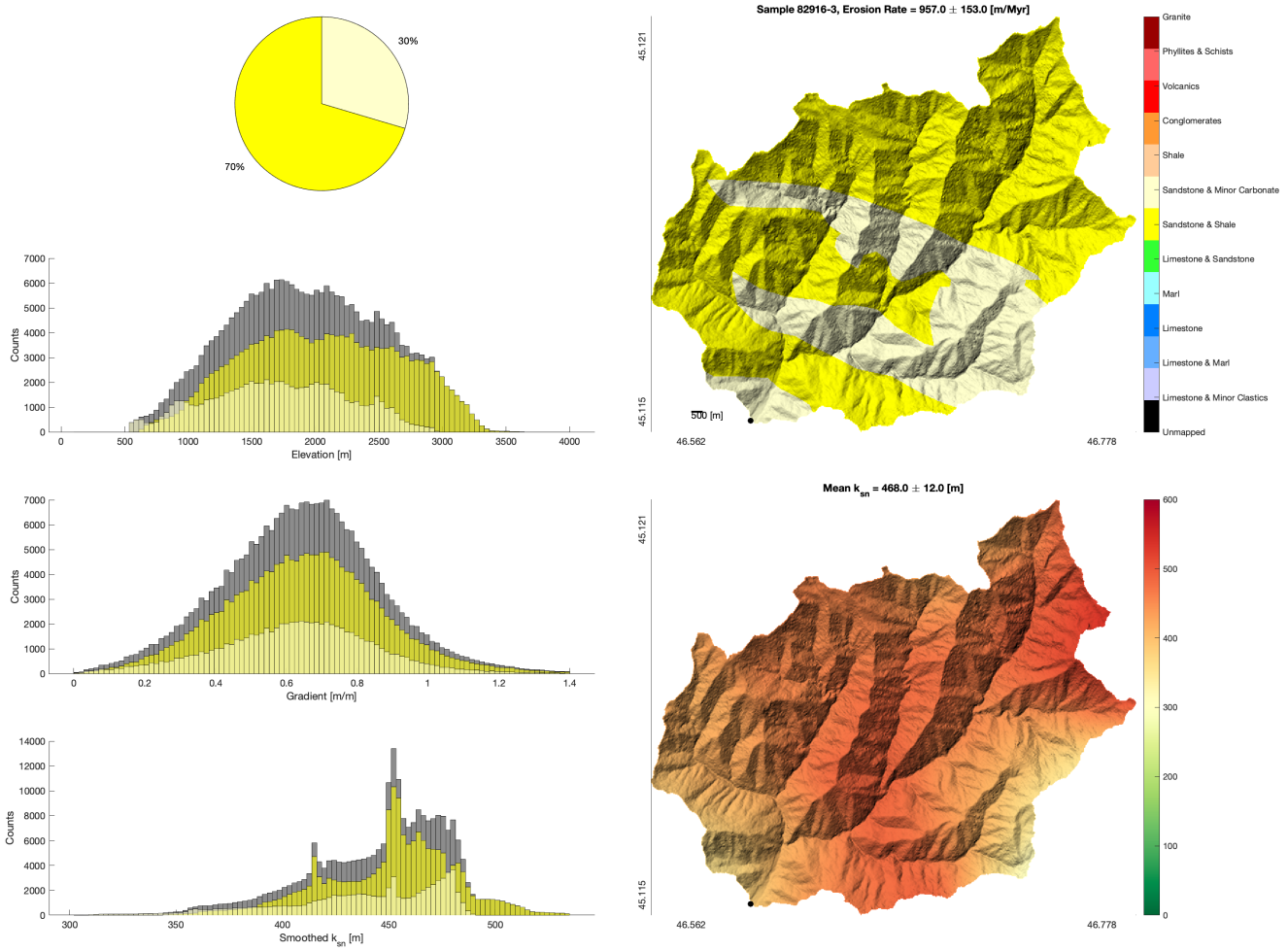

Figure 22: Relation between topography and lithology for sample 82916-3. Left column shows, from top to bottom; percentage of catchment occupied by different lithologies (keyed to color bar in right), histogram of elevation and portion of each elevation bin represented by a given lithology, histogram of hillslope gradient and portion of each gradient bin represented by a given lithology, and histogram of smoothed k_{sn} and portion of each k_{sn} bin represented by a given lithology. Right column shows distribution of lithology within the catchment (top) and smoothed k_{sn} (bottom).

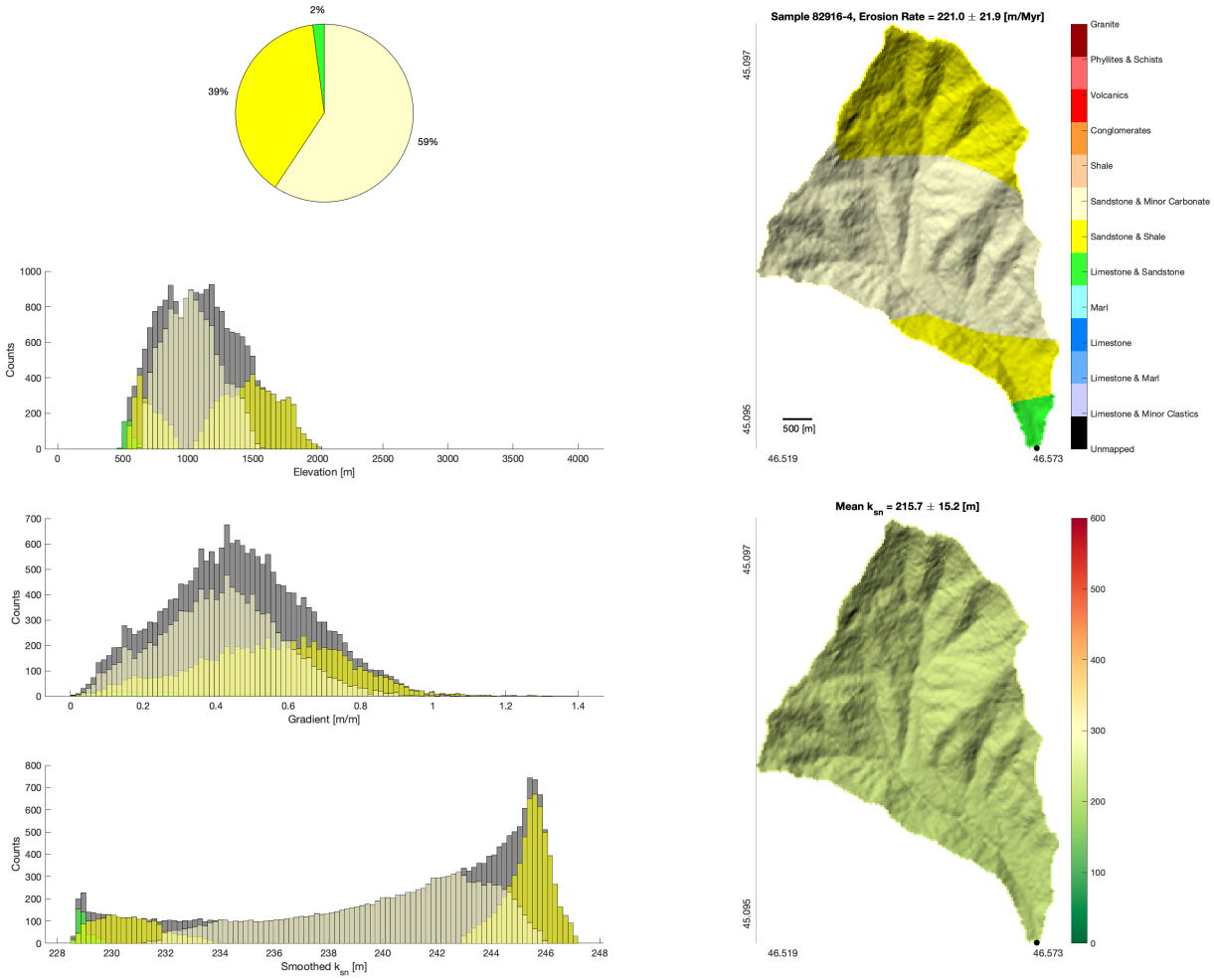

Figure 23: Relation between topography and lithology for sample 82916-4. Left column shows, from top to bottom; percentage of catchment occupied by different lithologies (keyed to color bar in right), histogram of elevation and portion of each elevation bin represented by a given lithology, histogram of hillslope gradient and portion of each gradient bin represented by a given lithology, and histogram of smoothed k_{sn} and portion of each k_{sn} bin represented by a given lithology. Right column shows distribution of lithology within the catchment (top) and smoothed k_{sn} (bottom).

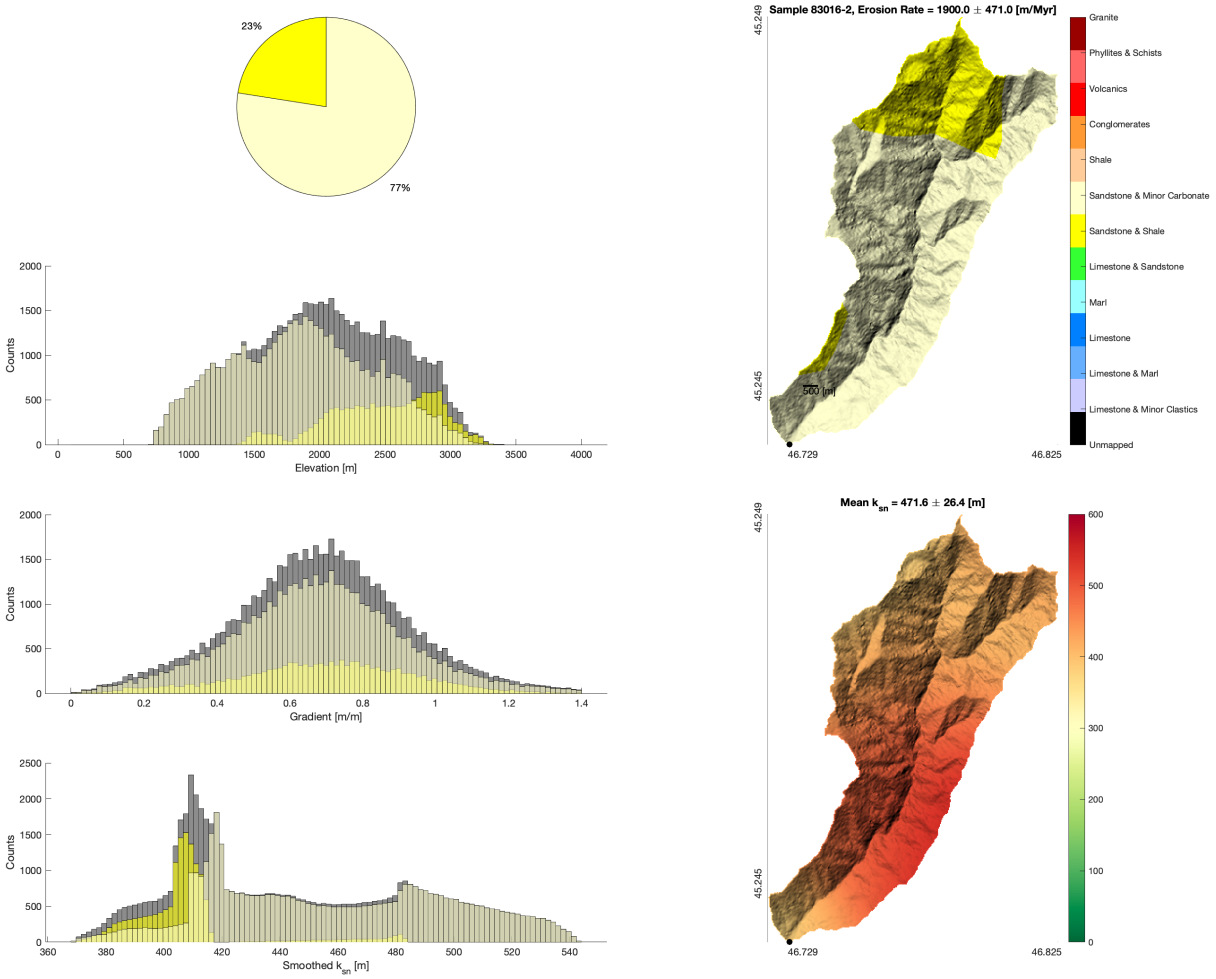

Figure 24: Relation between topography and lithology for sample 83016-2. Left column shows, from top to bottom; percentage of catchment occupied by different lithologies (keyed to color bar in right), histogram of elevation and portion of each elevation bin represented by a given lithology, histogram of hillslope gradient and portion of each gradient bin represented by a given lithology, and histogram of smoothed k_{sn} and portion of each k_{sn} bin represented by a given lithology. Right column shows distribution of lithology within the catchment (top) and smoothed k_{sn} (bottom).

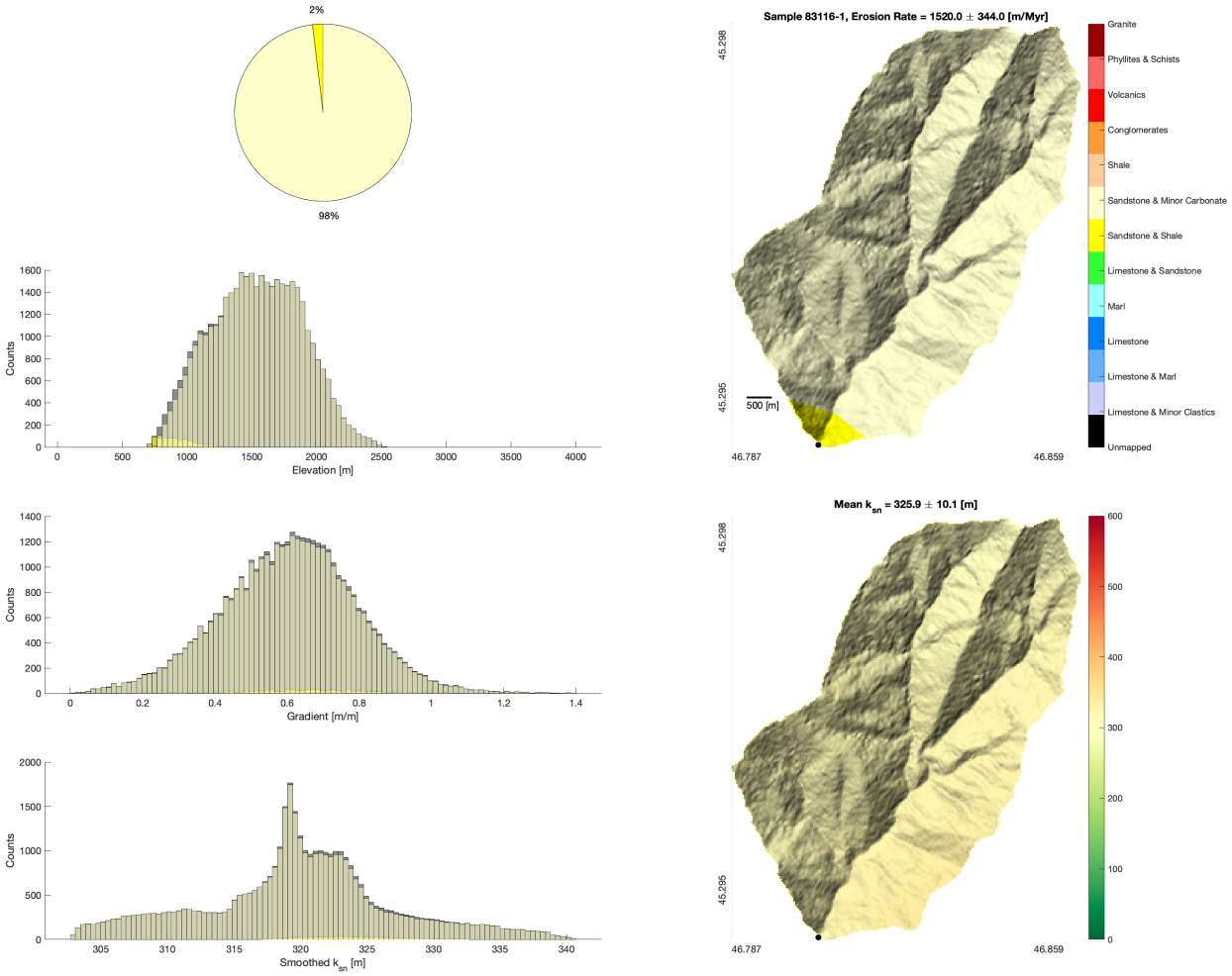

Figure 25: Relation between topography and lithology for sample 83116-1. Left column shows, from top to bottom; percentage of catchment occupied by different lithologies (keyed to color bar in right), histogram of elevation and portion of each elevation bin represented by a given lithology, histogram of hillslope gradient and portion of each gradient bin represented by a given lithology, and histogram of smoothed k_{sn} and portion of each k_{sn} bin represented by a given lithology. Right column shows distribution of lithology within the catchment (top) and smoothed k_{sn} (bottom).

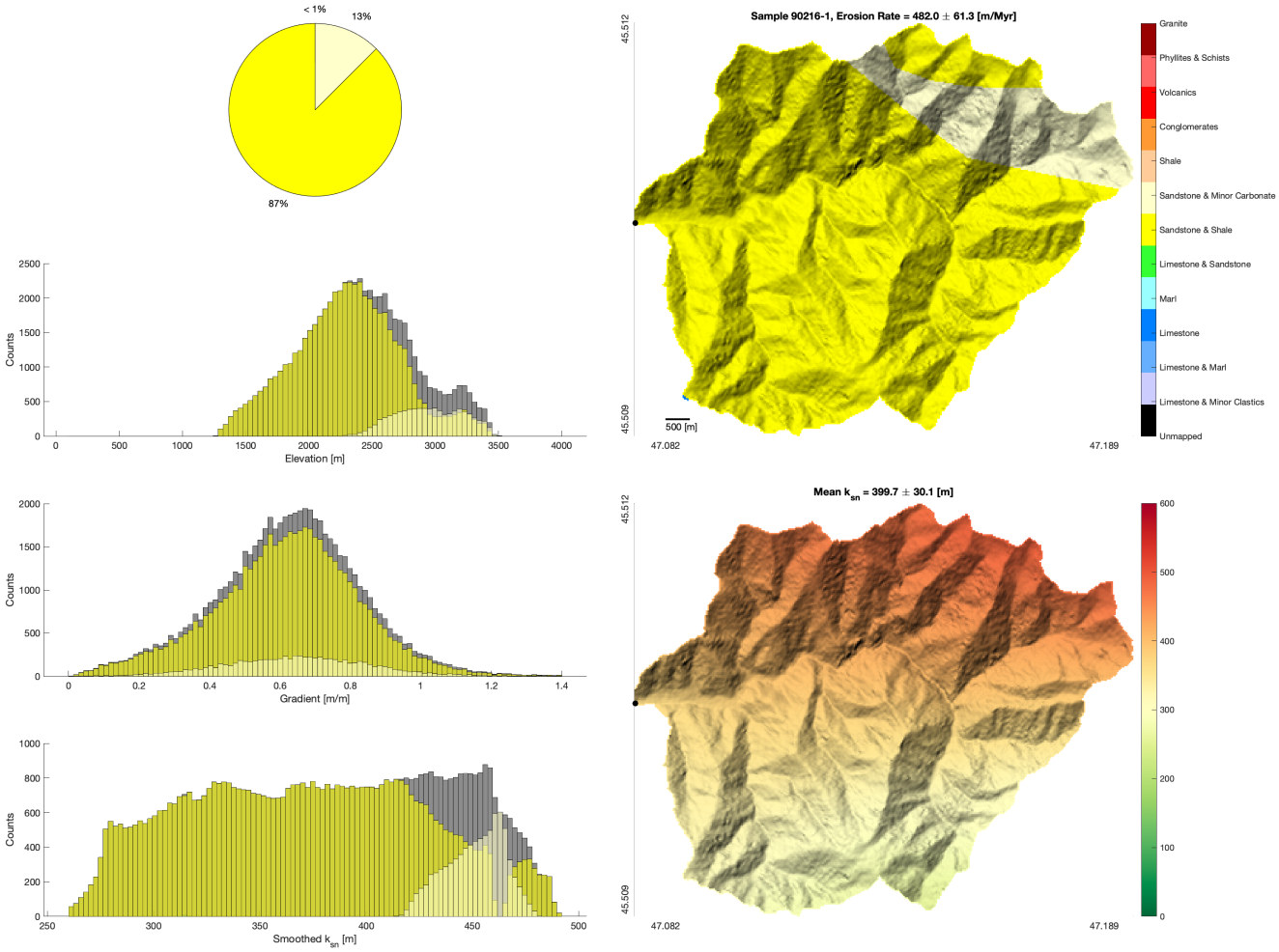

Figure 26: Relation between topography and lithology for sample 90216-1. Left column shows, from top to bottom; percentage of catchment occupied by different lithologies (keyed to color bar in right), histogram of elevation and portion of each elevation bin represented by a given lithology, histogram of hillslope gradient and portion of each gradient bin represented by a given lithology, and histogram of smoothed k_{sn} and portion of each k_{sn} bin represented by a given lithology. Right column shows distribution of lithology within the catchment (top) and smoothed k_{sn} (bottom).

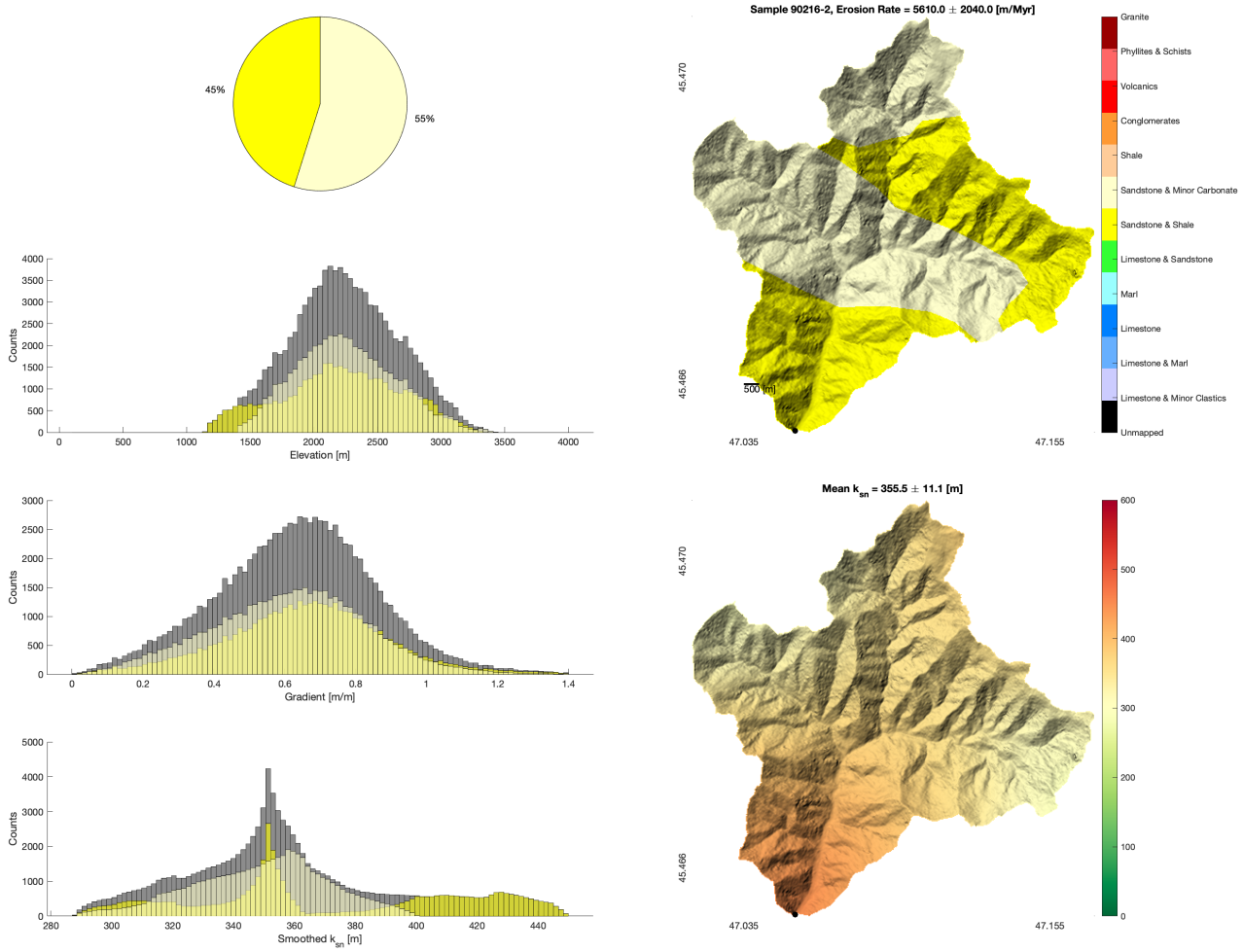

Figure 27: Relation between topography and lithology for sample 90216-2. Left column shows, from top to bottom; percentage of catchment occupied by different lithologies (keyed to color bar in right), histogram of elevation and portion of each elevation bin represented by a given lithology, histogram of hillslope gradient and portion of each gradient bin represented by a given lithology, and histogram of smoothed k_{sn} and portion of each k_{sn} bin represented by a given lithology. Right column shows distribution of lithology within the catchment (top) and smoothed k_{sn} (bottom).

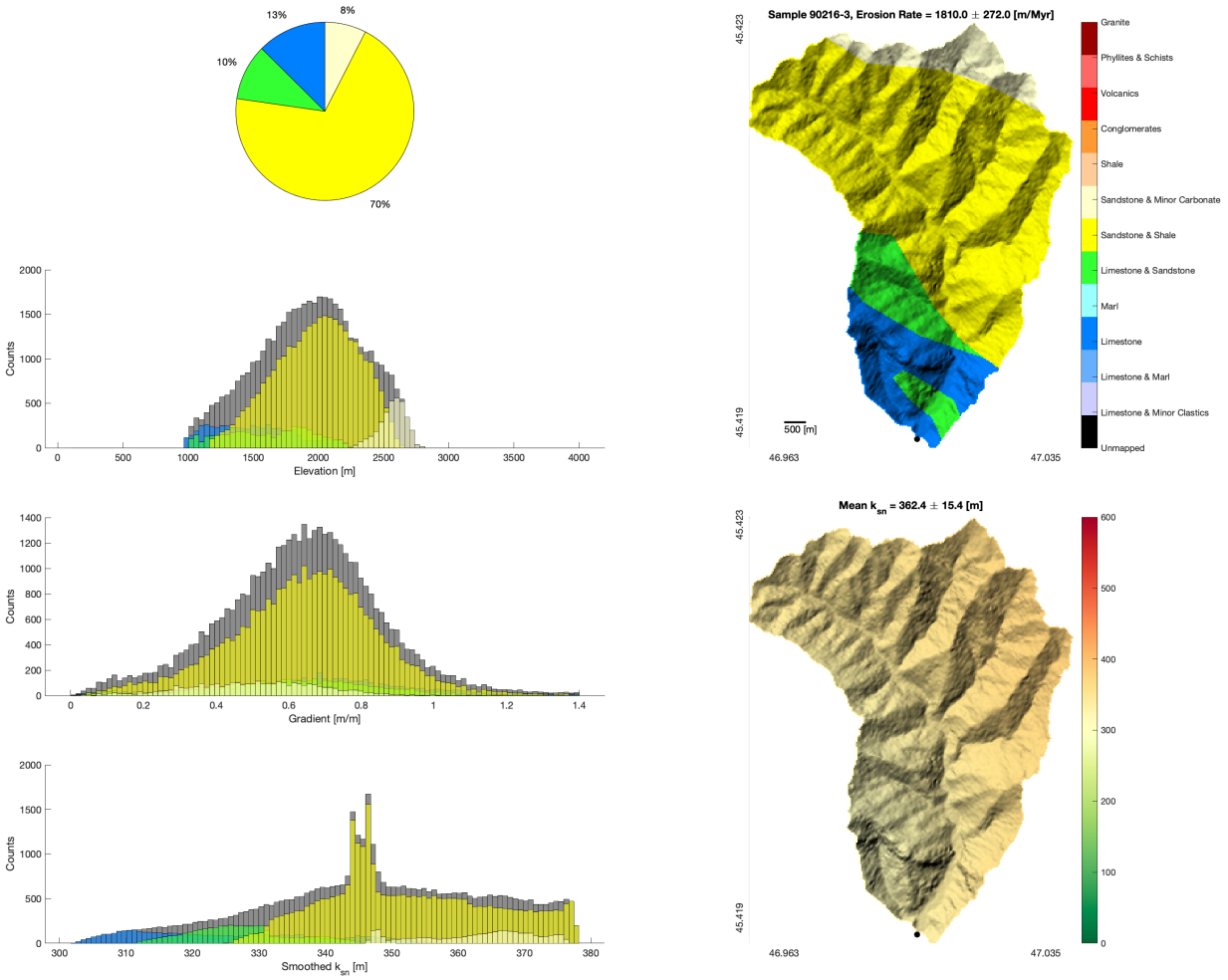

Figure 28: Relation between topography and lithology for sample 90216-3. Left column shows, from top to bottom; percentage of catchment occupied by different lithologies (keyed to color bar in right), histogram of elevation and portion of each elevation bin represented by a given lithology, histogram of hillslope gradient and portion of each gradient bin represented by a given lithology, and histogram of smoothed k_{sn} and portion of each k_{sn} bin represented by a given lithology. Right column shows distribution of lithology within the catchment (top) and smoothed k_{sn} (bottom).

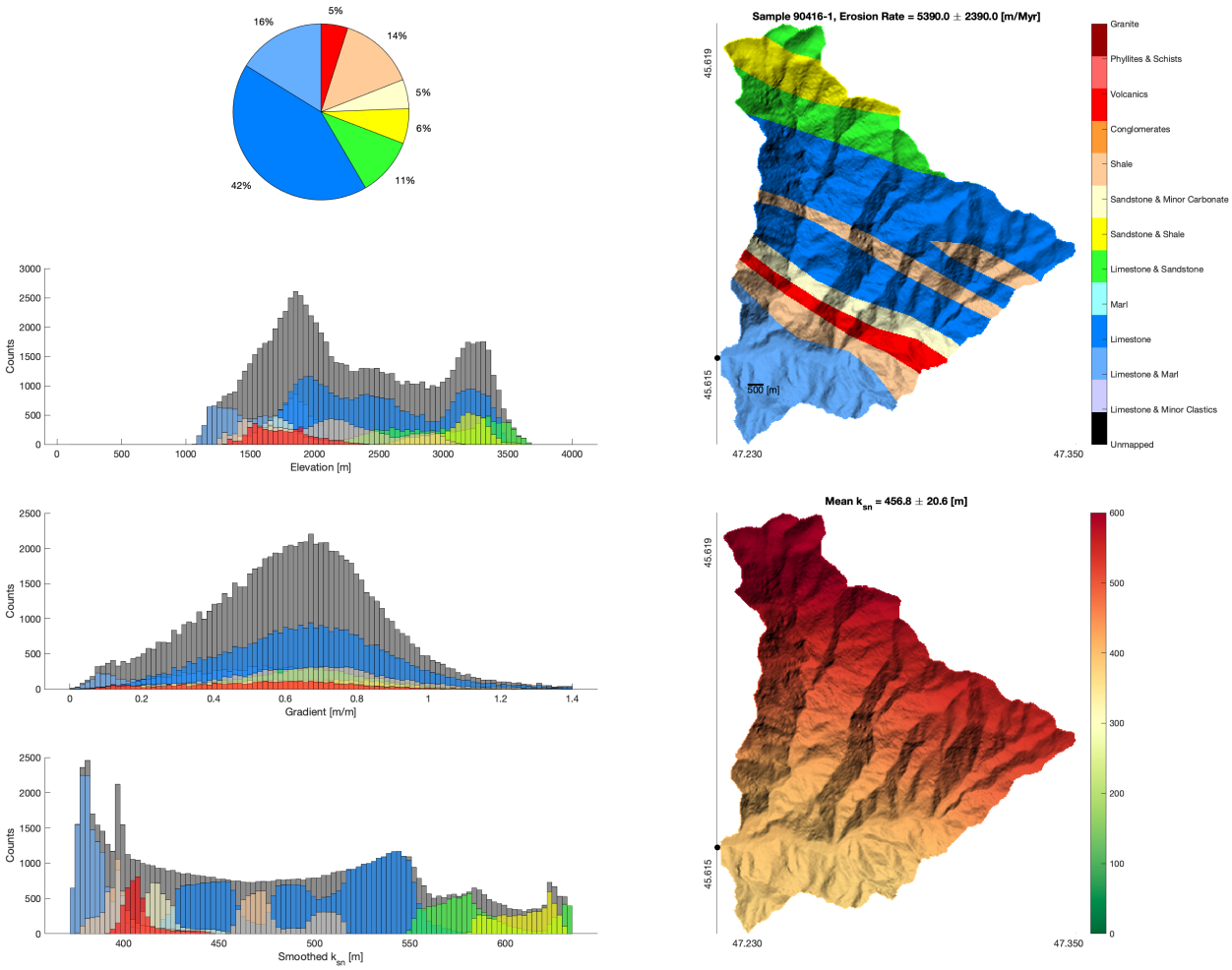

Figure 29: Relation between topography and lithology for sample 90416-1. Left column shows, from top to bottom; percentage of catchment occupied by different lithologies (keyed to color bar in right), histogram of elevation and portion of each elevation bin represented by a given lithology, histogram of hillslope gradient and portion of each gradient bin represented by a given lithology, and histogram of smoothed k_{sn} and portion of each k_{sn} bin represented by a given lithology. Right column shows distribution of lithology within the catchment (top) and smoothed k_{sn} (bottom).

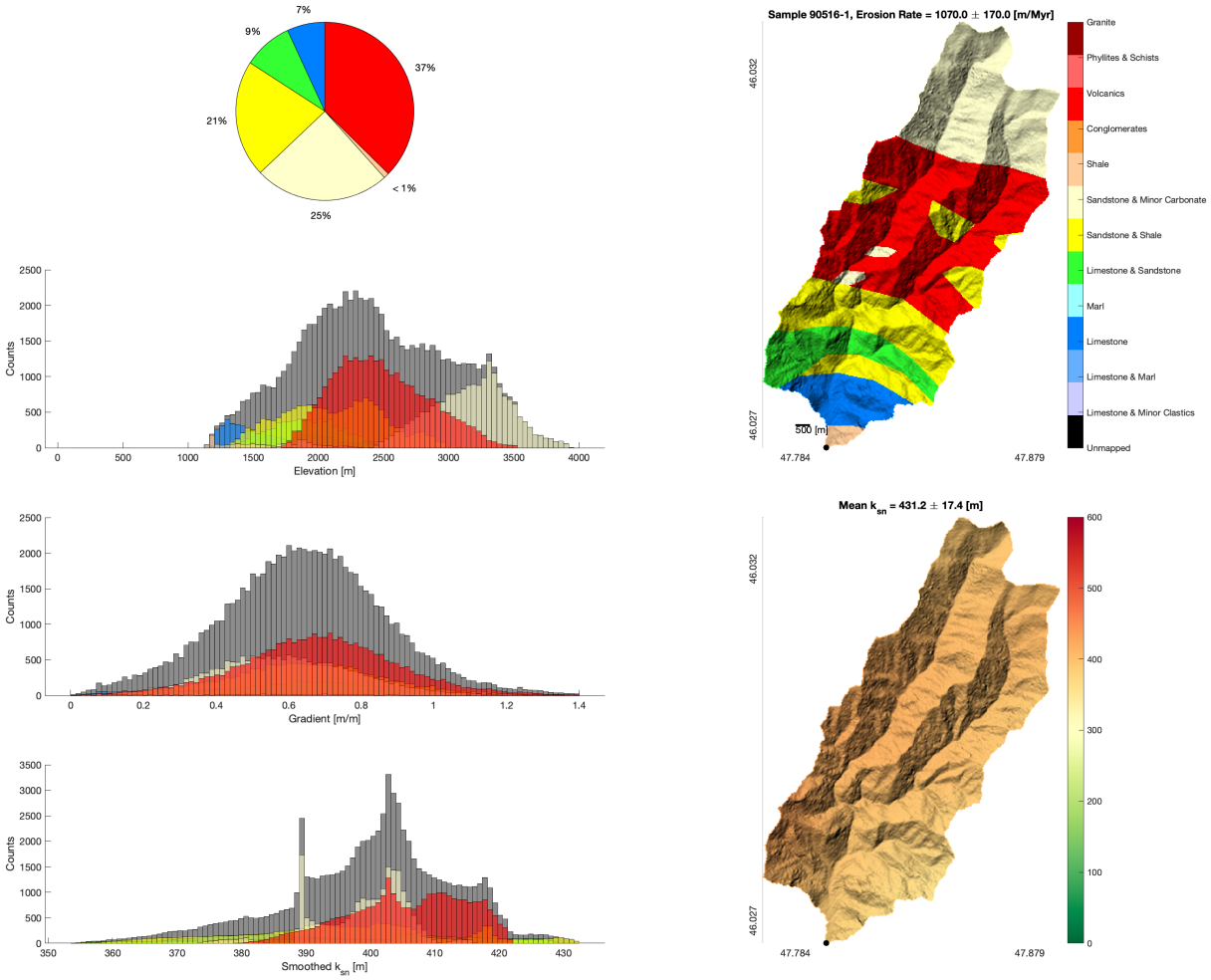

Figure 30: Relation between topography and lithology for sample 90516-1. Left column shows, from top to bottom; percentage of catchment occupied by different lithologies (keyed to color bar in right), histogram of elevation and portion of each elevation bin represented by a given lithology, histogram of hillslope gradient and portion of each gradient bin represented by a given lithology, and histogram of smoothed k_{sn} and portion of each k_{sn} bin represented by a given lithology. Right column shows distribution of lithology within the catchment (top) and smoothed k_{sn} (bottom).

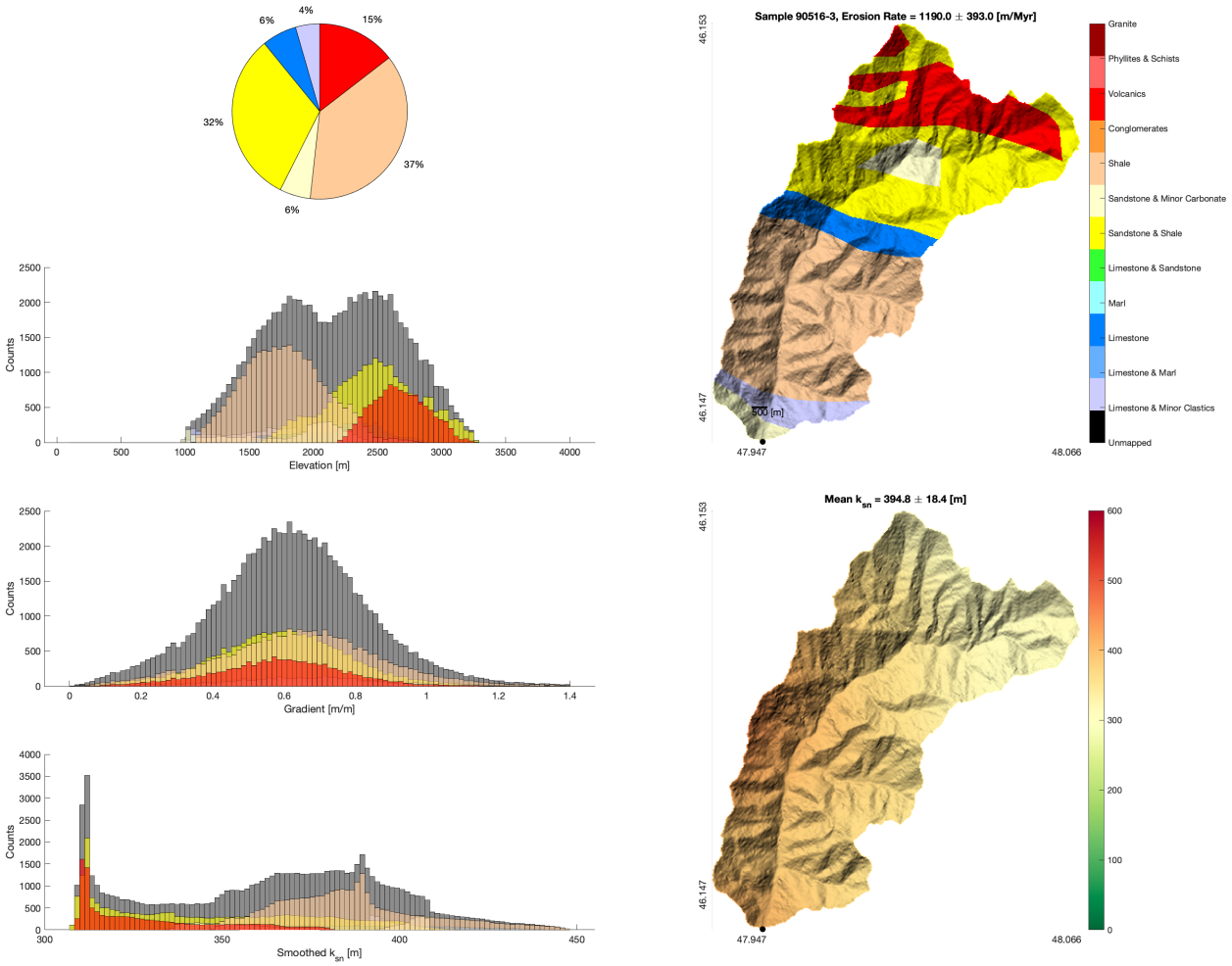

Figure 31: Relation between topography and lithology for sample 90516-3. Left column shows, from top to bottom; percentage of catchment occupied by different lithologies (keyed to color bar in right), histogram of elevation and portion of each elevation bin represented by a given lithology, histogram of hillslope gradient and portion of each gradient bin represented by a given lithology, and histogram of smoothed k_{sn} and portion of each k_{sn} bin represented by a given lithology. Right column shows distribution of lithology within the catchment (top) and smoothed k_{sn} (bottom).

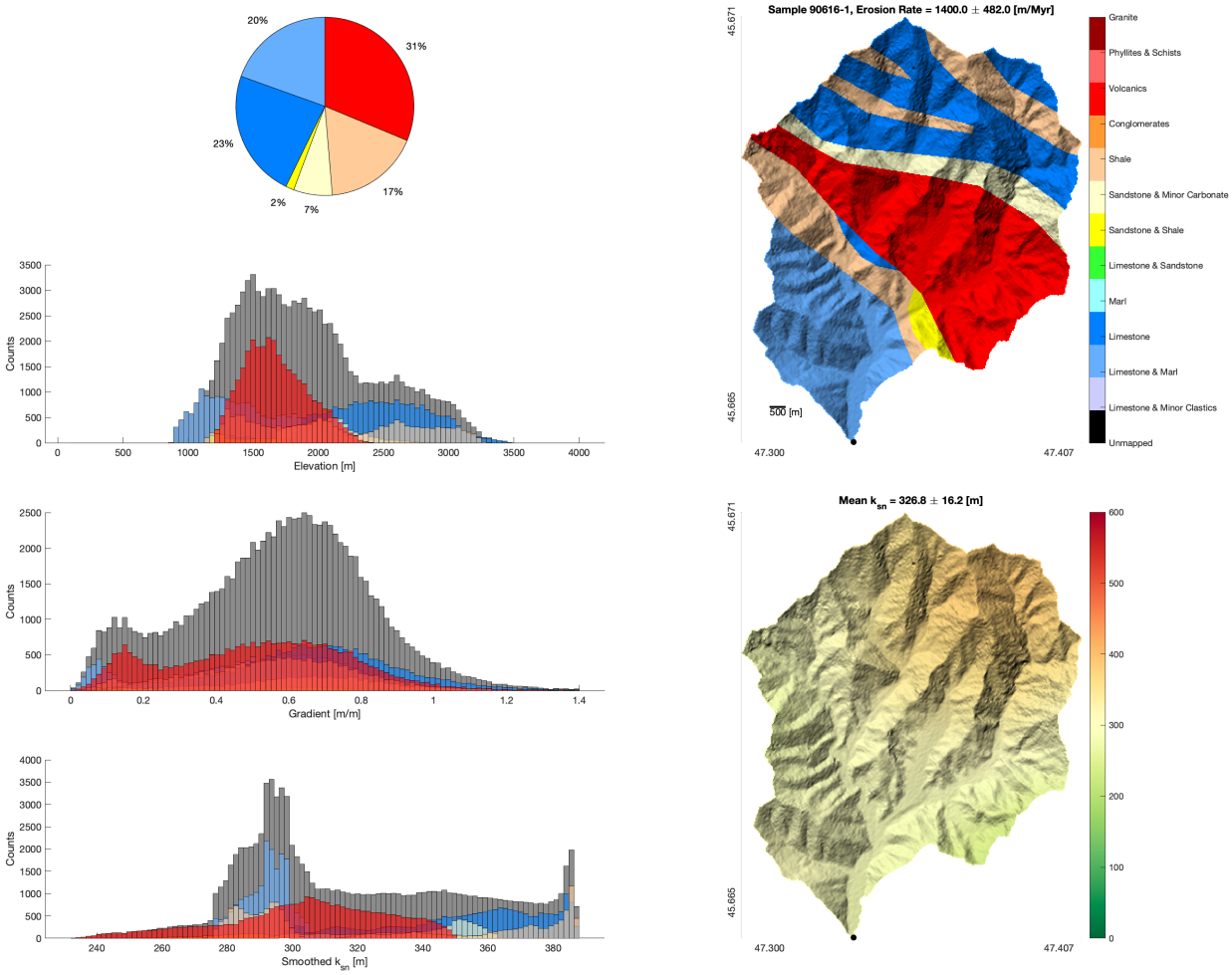

Figure 32: Relation between topography and lithology for sample 90616-1. Left column shows, from top to bottom; percentage of catchment occupied by different lithologies (keyed to color bar in right), histogram of elevation and portion of each elevation bin represented by a given lithology, histogram of hillslope gradient and portion of each gradient bin represented by a given lithology, and histogram of smoothed k_{sn} and portion of each k_{sn} bin represented by a given lithology. Right column shows distribution of lithology within the catchment (top) and smoothed k_{sn} (bottom).

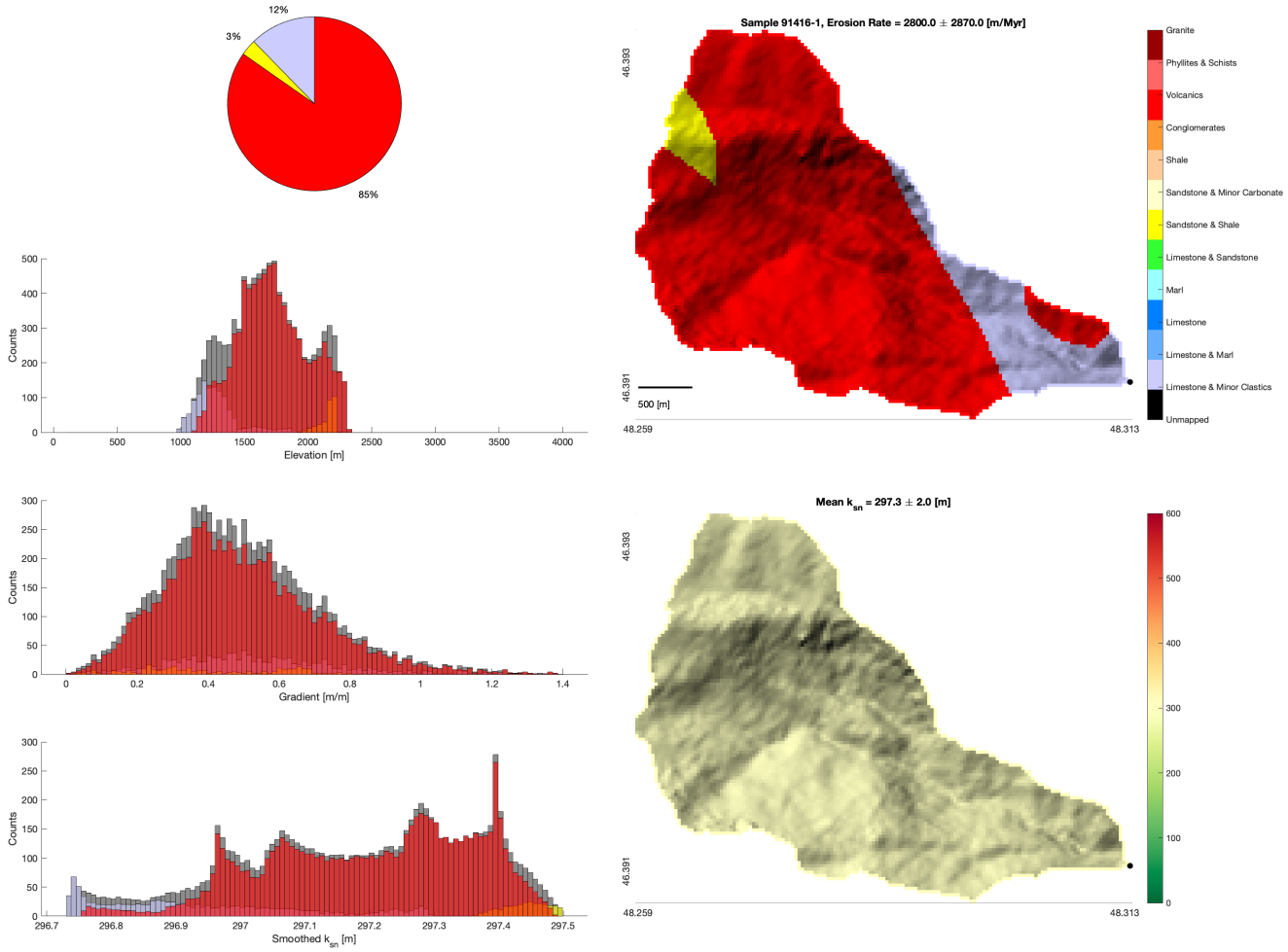

Figure 33: Relation between topography and lithology for sample 91416-1. Left column shows, from top to bottom; percentage of catchment occupied by different lithologies (keyed to color bar in right), histogram of elevation and portion of each elevation bin represented by a given lithology, histogram of hillslope gradient and portion of each gradient bin represented by a given lithology, and histogram of smoothed k_{sn} and portion of each k_{sn} bin represented by a given lithology. Right column shows distribution of lithology within the catchment (top) and smoothed k_{sn} (bottom).

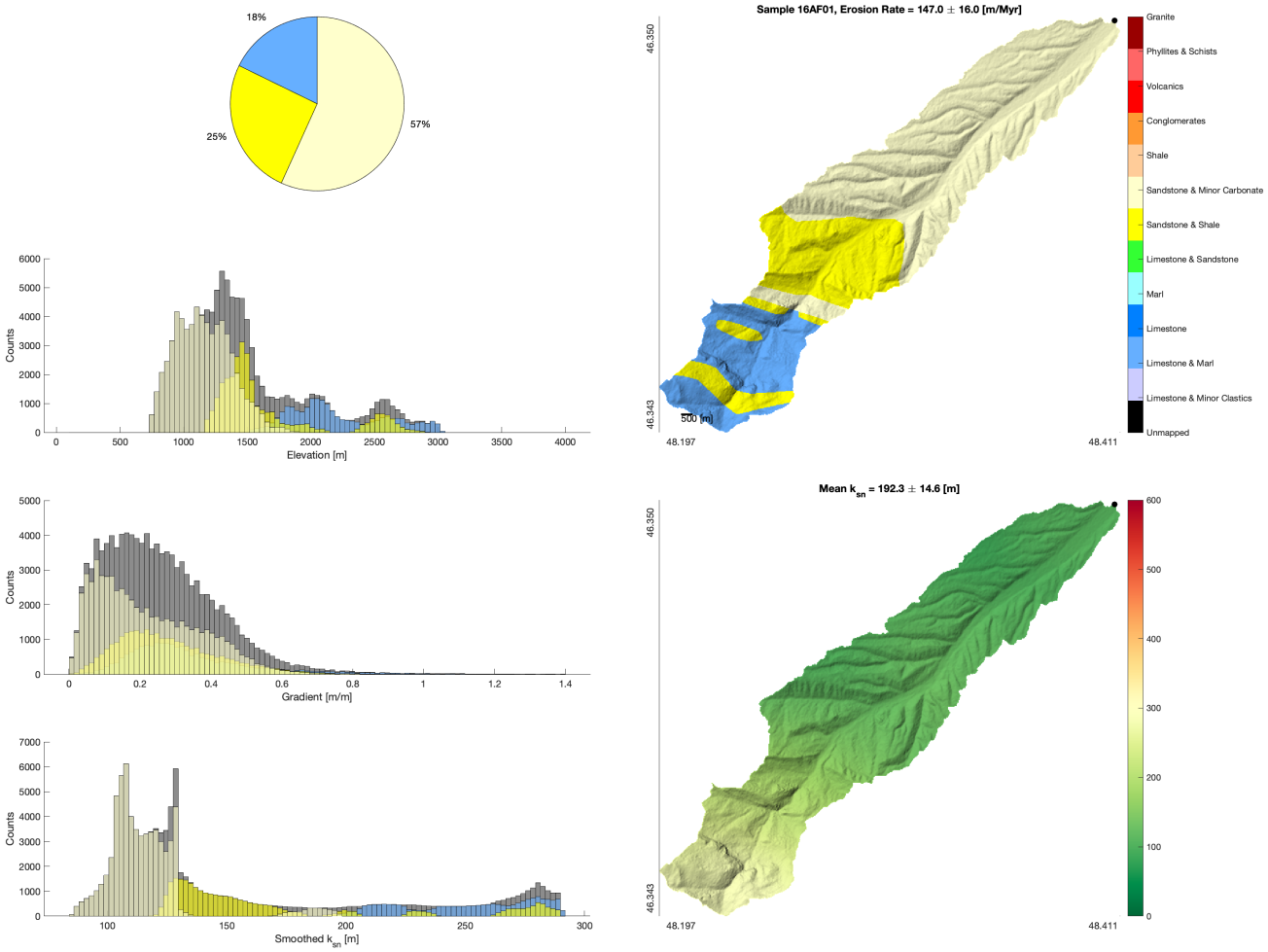

Figure 34: Relation between topography and lithology for sample 16AF01. Left column shows, from top to bottom; percentage of catchment occupied by different lithologies (keyed to color bar in right), histogram of elevation and portion of each elevation bin represented by a given lithology, histogram of hillslope gradient and portion of each gradient bin represented by a given lithology, and histogram of smoothed k_{sn} and portion of each k_{sn} bin represented by a given lithology. Right column shows distribution of lithology within the catchment (top) and smoothed k_{sn} (bottom).

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