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Title of article Provenance of North American Phanerozoic sandstones in relation to tectonic setting

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Contents 34 pages

Appendix Table - Framework models and inferred provenances of North American phanerozoic sandstone suites, and appendix references

APPENDIX TABLE. FRAMEWORK MODES AND INFERRED PROVENANCES OF NORTH AMERICAN PHANEROZOIC SANDSTONE SUITES

Map 1 (Latest Precambrian to mid-Ordovician)

Age, Unit, Location	N	QFL	QmFLt	Reference	Provenance Type
1. Lower Paleozoic flysch sandstones, Quebec, Canada	300	71-22-7	71-22-7	Lajoie and others, 1974	Transitional Continental
2. Precambrian or Cambrian Harpers Formation, central Virginia	35	93-6-1	88-6-6	Schwab, 1971	Craton Interior
3. Precambrian or Cambrian Antietam Formation, central Virginia	46	94-6-0	90-6-4	Schwab, 1970	Craton Interior
4. Precambrian Mechum River Formation, Blue Ridge, Virginia	34	71-26-3	48-26-26	Schwab, 1974	Transitional Continental
5. Late Precambrian Mount Rogers Formation, Blue Ridge, Virginia	3	69-17-14	61-17-22	Schwab, 1976	Quartzose Recycled
6. Late Precambrian Grandfather Mountain Formation, Blue Ridge, North Carolina	31	65-24-11	62-24-14	Schwab, 1977	Quartzose Recycled
7. Cambrian Chilhowee Group, eastern Tennessee	89	85-13-2	- - -	Whisonant, 1974	Craton Interior
8. Upper Cambrian Lamotte Sandstone, Missouri	139	84-4-12	80-4-16	Houseknecht and Ethridge, 1978; Ojakangas, 1963	Quartzose Recycled
9. Ordovician Crystal Mountain and Blakely Sandstones, Ouachita Mountains	10	97-2-1	- - -	Morris, 1974; Davies and Williamson, 1977	Craton Interior
10. Cambrian units, upper Mississippi Valley	40	90-10-0	89-10-1	Potter and Pryor, 1961	Craton Interior
11. Ordovician units, upper Mississippi Valley	25	99-t-t	99-t-1	Potter and Pryor, 1961	Craton Interior
12. Upper Cambrian Mount Simon Formation, upper Mississippi Valley	4	81-19-0	- - -	Odom, 1975	Transitional Continental
13. Upper Cambrian Wonewoc Formation, Upper Mississippi Valley	4	88-12-0	- - -	Odom, 1975	Craton Interior
14. Cambrian Fond du Lac Formation, northern Minnesota	19	65-21-14	- - -	Morey, 1967	Quartzose Recycled

Age, Unit, Location	N	QFL	QmFLt	Reference	Provenance Type
15. Upper Cambrian Bolsa Quartzite, southern Arizona	8	86-12-2	- - -	J. F. Schreiber, 1979, personal communication	Craton Interior
16. Mojave Desert Precambrian and and Cambrian units, southern California	494	94-6-0	- - -	Lobo and Osborne, 1976	Craton Interior
17. Cambrian Harmony Formation, north-central Nevada	79	75-24-1	75-24-1	Suczek, 1977	Transitional Continental
18. Lower Paleozoic Shoo Fly Formation, Sierra Nevada, California	100	94-5-1	82-5-13	Bond and DeVay, 1980	Craton Interior
19. Lower Paleozoic Antelope Mountain Quartzite, Klamath Mountains, California	20	97-2-1	86-2-12	Bond and Devay, 1980	Craton Interior
20. Lower Paleozoic units, southeastern Idaho	13	72-27-1	71-27-2	Suczek, 1977	Transitional Continental
21. Lower Paleozoic units, southwestern Montana	27	100-0-0	100-0-0	McLane, 1971	Craton Interior
22. Lower Paleozoic McNaughton Formation, southern British Columbia	4	90-7-3	- - -	Young, 1979	Craton Interior
23. Ordovician Yanks Peak Quartzite, Cariboo River area, British Columbia	1	99-1-0	- - -	Brown, 1963	Craton Interior
24. Proterozoic Kaza Group, Cariboo River area, British Columbia	19	88-12-0	- - -	Brown, 1963	Craton Interior

Map 2 (mid-Ordovician to mid-Devonian)

Age, Unit, Location	N	QFL	QmFLt	Reference	Provenance Type
1. Ordovician Tourelle Formation, Gaspe Peninsula, Quebec	19	68-12-20	62-12-26	Hiscott, 1978	Quartzose Recycled
2. Ordovician Martinsburg Formation, Virginia-Pennsylvania	20	65-7-28	59-7-34	McBride, 1962	Quartzose Recycled
3. Lower Paleozoic Taconic molasse, Appalachian Basin	?	78-3-19	77-3-20	Pettijohn and others, 1973	Quartzose Recycled
4. Devonian sandstones, upper Mississippi Valley	12	100-0-0	99-0-1	Potter and Pryor, 1961	Craton Interior
5. Silurian Missouri Mountain Formation, Ouachita Mountains	6	100-0-0	- - -	Morris, 1974	Craton Interior

Age, Unit, Location	N	QFL	QmFLt	Reference	Provenance Type
6. Pre-Upper Devonian sandstones, Sierra Nevada, California	120	95-4-1	83-4-13	Bond and DeVay, 1980	Craton Interior
7. Ordovician Duzel Formation, Klamath Mountains, California	5	74-21-5	60-21-19	Condie and Snansieng, 1971	Transitional Continental
8. Silurian Gazelle Formation, Klamath Mountains, California	10	35-19-46	11-19-70	Condie and Snansieng, 1971	Transitional Arc
9. Silurian-Devonian units, Klamath Mountains, California	5	61-7-32	12-7-81	Condie and Snansieng, 1971	Lithic Recycled
10. Mid-Upper Ordovician units, Nevada-Idaho	?	100-0-0	99-0-1	Ketner, 1966	Craton Interior
11. Devonian Maywood Formation, southwestern Montana	2	100-0-0	100-0-0	McLane, 1971	Craton Interior
12. Ordovician Snowshoe Formation, Cariboo River area, British Columbia	20	95-5-0	- - -	Brown, 1963	Craton Interior

Map 3 (mid-Devonian to mid-Carboniferous)

Age, Unit, Location	N	QFL	QmFLt	Reference	Provenance Type
1. Upper Devonian Catskill delta, New York	35	58-4-38	- - -	Allen and Friend, 1968	Indeterminate Recycled
2. Upper Devonian units, upstate New York	41	72-2-23	40-3-57	Ethridge, 1977	Transitional Recycled
3. Mississippian Mauch Chunk Formation, Pennsylvania	51	90-4-6	73-4-23	Hogue, 1968	Quartzose Recycled
4. Mississippian Parkwood Formation, Black Warrior basin, Alabama	30	82-2-16	65-2-33	Mack and others, 1981	Quartzose Recycled
5. Mississippian Hartselle Formation, Black Warrior basin, Alabama	50	98-1-1	90-1-9	Mack and others, 1981	Craton Interior
6. Mississippian sandstones, Illinois basin, Illinois	40	94-1-5	87-1-12	Mack and others, 1981	Quartzose Recycled
7. Mississippian sandstones, upper Mississippi Valley	68	97-1-2	91-1-8	Potter and Pryor, 1961	Craton Interior
8. Mississippian Stanley Formation, Ouachita Mountains	182	84-14-2	- - -	Morris, 1974	Craton Interior
9. Mississippian strata, Diamond Mountains, Nevada	18	73-2-25	47-2-51	Harbaugh, 1980	Transitional Recycled
10. Mississippian Guyet Formation, British Columbia	12	57-14-29	- - -	Brown, 1963	Indeterminate Recycled

Map 4 (mid-Carboniferous to mid-Triassic)

Age, Unit, Location	N	QFL	QmFLt	Reference	Provenance Type
1. Carboniferous sandstones, eastern Massachusetts	17	70-7-23	- - -	Stanley, 1968	Indeterminate Recycled
2. Pennsylvanian (Pottsville) lithic arenite, New River Formation, southern West Virginia	41	73-2-25	61-2-37	Houseknecht, 1980	Quartzose Recycled
3. Pennsylvanian (Pottsville) quartz arenite, New River Formation, southern West Virginia	32	95-0-5	82-0-18	Houseknecht, 1980	Quartzose Recycled
4. Pennsylvanian Breathitt Formation, northeastern Kentucky	168	59-13-28	- - -	Flores, 1978	Indeterminate Recycled
5. Pennsylvanian sandstones, central Pennsylvania	5	61-0-39	60-0-40	Ferm, 1962	Quartzose Recycled
6. Pennsylvanian sandstones, Appalachian Basin	17	92-5-3	63-5-32	Siever, 1957	Quartzose Recycled
7. Upper Pennsylvanian sandstones, Appalachian Basin	?	79-3-18	76-3-21	Pettijohn and others, 1973	Quartzose Recycled
8. Lower Pennsylvanian Sewanee Sandstone, Alabama - Georgia	32	99-0-1	68-0-32	Chen and Goodell, 1964	Quartzose Recycled
9. Carboniferous sandstones, Black Warrior Basin, Alabama	12	62-6-32	44-6-50	Graham and others, 1976	Transitional Recycled
10. Pennsylvanian sandstones, western Indiana	15	91-6-3	69-6-25	Siever, 1957	Quartzose Recycled
11. Pennsylvanian sandstones, western Kentucky	19	97-3-0	84-3-13	Siever, 1957	Quartzose Recycled
12. Pennsylvanian Pleasantview Sandstone, Iowa - Illinois	89	75-8-17	67-8-25	Laury, 1968	Quartzose Recycled
13. Pennsylvanian Trivoli Sandstone, Illinois Basin, Illinois	?	81-6-15	77-6-17	Andreson, 1961	Quartzose Recycled
14. Pennsylvanian sandstones, southern Illinois	22	94-4-2	71-4-25	Siever, 1957	Quartzose Recycled
15. Pennsylvanian, Edwards and White Counties, Illinois	33	96-4-0	83-4-13	Siever, 1957	Quartzose Recycled
16. Pennsylvanian sandstones, southern Illinois	28	93-4-3	92-4-4	Potter and Glass, 1958	Craton Interior
17. Pennsylvanian sandstones, western Illinois	22	95-4-1	83-4-13	Siever, 1957	Quartzose Recycled
18. Pennsylvanian sandstones, southwestern Illinois	?	93-5-2	72-5-23	Siever, 1957	Quartzose Recycled
19. Pennsylvanian Warrensburg Sandstone, western Missouri	21	76-10-14	- - -	Doty and Hubert, 1962	Indeterminate Recycled

Age,	Unit, Location	N	QFL	QmFLt	Reference	Provenance Type
20.	Pennsylvanian sandstones, Missouri	17	93-4-3	80-4-16	Siever, 1957	Quartzose Recycled
21.	Pennsylvanian Jackfork Formation, Ouachita Mountains	201	96-1-3	- - -	Morris, 1974	Craton Interior
22.	Pennsylvanian Atoka Formation, Ouachita Mountains	18	77-7-16	- - -	Morris, 1974	Indeterminate Recycled
23.	Carboniferous sandstones, Ouachita Mountains	12	79-3-18	67-3-30	Graham and others, 1976	Quartzose Recycled
24.	Morrowan sandstones, Cimarron County, Oklahoma	9	69-10-21	- - -	Kasino and Davies, 1979	Indeterminate Recycled
25.	Permian Bell Canyon Formation, Culberson County, Texas	8	77-23-0	54-23-23	Watson, 1974	Transitional Continental
26.	Permian Bell Canyon Formation, Texas - New Mexico	29	72-20-8	- - -	Williamson, 1978	Indeterminate Recycled
27.	Guadalupian formations, Pecos County, Texas	34	73-23-4	69-23-8	Kanschat, 1981	Transitional Continental
28.	Guadalupian Delaware Mountain Group, New Mexico	38	77-12-11	- - -	Berg, 1979	Indeterminate Recycle
29.	Pennsylvanian Haymond Formation, Marathon Mountains, Texas	31	71-17-12	68-17-15	McBride, 1966	Quartzose Recycled
30.	Upper Paleozoic sandstones, north-central Mexico	17	88-6-6	85-6-9	Mellor and Breyer, 1981	Craton Interior
31.	Permian Yeso Formation, central New Mexico	12	64-21-15	60-21-19	Hunter and Ingersoll, 1981	Quartzose Recycled
32.	Pennsylvanian-Permian Fountain Formation, Colorado Front Range	38	65-33-2	51-33-16	Hubert, 1960	Transitional Continental
33.	Pennsylvanian Minturn Formation, central Colorado	68	61-38-1	55-38-7	Boggs, 1966	Transitional Continental
34.	Permian Lyons Formation, Colorado Front Range	32	78-22- 0	66-22-12	Hubert, 1960	Transitional Continental
35.	Permian Cutler Formation, southwestern Colorado	2	43-57-0	- - -	Shawe, 1968	Basement Uplift
36	Pennsylvanian to Triassic, western Wyoming	5	88-3-9	87-3-10	Schwab, 1969	Quartzose Recycled
37.	Triassic Chugwater Formation, west-central Wyoming	6	74-25-1	72-25-3	Picard, 1966	Transitional Continental
38.	Mid-Triassic Moenkopi Formation, Utah	131	72-23-5	67-23-10	Cadigan, 1971	Transitional Continental

Age, Unit, Location	N	QFL	QmFLt	Reference	Provenance Type
39. Pennsylvanian-Permian Oquirrh Group, northwestern Utah	13	81-16-3	- - -	Jordan and Douglass, 1980	Transitional Continental
40. Pennsylvanian Battle Formation, Battle Mountain, Nevada	7	73-1-26	44-1-55	Saller, 1980	Transitional Recycled
41. Permian Phosphoria Formation, southwestern Montana	8	94-0-6	- - -	McLane, 1971	Indeterminate Recycled
42. Permian Nosoni Formation, Shasta Lake area, northern California	7	2-16-82	2-16-82	Murray and Condie, 1973	Undissected Arc
43. Triassic Pit Formation, Shasta Lake area, northern California	9	10-40-50	7-40-53	Murray and Condie, 1973	Transitional Arc
44. Carboniferous Antler Formation, Cariboo River, British Columbia	1	83-6-11	59-6-35	Brown, 1963	Quartzose Recycled

Map 5 (mid-Triassic to mid-Late Jurassic)

Age, Unit, Location	N	QFL	QmFLt	Reference	Provenance Type
1. Triassic Wolfville Formation, Nova Scotia	?	82-9-9	60-9-31	Balasz and Klein, 1972	Quartzose Recycled
2. Triassic Stockton and Oxford Formations, Pennsylvania	50	73-26-1	71-26-3	Glaeser, 1966	Transitional Continental
3. Upper Jurassic Entrada Formation, southwestern Colorado	1	91-9-0	91-9-0	Shawe, 1968	Craton Interior
4. Upper Jurassic Summerville Formation, southwestern Colorado	1	90-10-0	81-10-9	Shawe, 1968	Craton Interior
5. Upper Triassic Chinle Formation, eastern Utah	3	92-6-2	- - -	Hawley and others, 1965	Craton Interior
6. Upper Jurassic Entrada Formation, northeastern Utah	34	88-9-3	88-9-3	Otto and Picard, 1976	Craton Interior
7. Lower Jurassic Nugget Formation, Utah and Wyoming	?	84-13-3	81-13-6	Picard, 1977	Craton Interior
8. Upper Triassic Gartra Formation, Utah and Colorado	42	92-8-0	91-8-1	McCormick and Picard, 1969	Craton Interior
9. Lower Jurassic Navajo Formation, southern Utah	60	88-11-1	88-11-1	Uygur and Picard, 1980	Craton Interior
10. Jurassic strata, Livingston Hills, southwestern Arizona	11	34-53-13	33-53-14	Harding, 1978	Basement Uplift
11. Jurassic strata, Plomosa Mountains, southwestern Arizona	12	47-34-19	44-34-22	Harding, 1978	Dissected Arc

Age, Unit, Location	N	QFL	QmFLt	Reference	Provenance Type
12. Quartz-rich Upper Triassic Luning Formation, Nevada	9	88-0-12	77-0-23	Reilly and others, 1980	Quartzose Recycled
13. Chert-rich Upper Triassic Luning Formation, Nevada	18	74-1-25	45-1-54	Reilly and others, 1980	Transitional Recycled
14. Feldspar-rich Upper Triassic Luning Formation, Nevada	14	35-32-33	23-32-45	Reilly and others, 1980	Dissected Arc
15. Middle Jurassic lithic sandstones, Sierra Nevada foothills, California	16	22-10-68	6-10-84	Behrman, 1978	Lithic Recycled
16. Middle to Upper Jurassic sandstones, Sierra Nevada foothills, California	9	78-7-15	60-7-33	Behrman, 1978	Quartzose Recycled
17. Upper Jurassic lithic sandstones, Sierra Nevada foothills, California	20	21-5-74	7-5-88	Parkison, 1976	Lithic Recycled
18. Upper Triassic Modin Formation, Shasta Lake area, California	4	10-40-50	10-40-50	Murray and Condie, 1973	Transitional Arc
19. Lower Jurassic Potem Formation, Shasta Lake area, California	5	5-35-60	5-35-60	Murray and Condie, 1973	Undissected Arc
20. Upper Jurassic Galice Formation, Klamath Mountains, California	22	15-27-58	4-27-69	Harper, 1979	Undissected Arc
21. Upper Triassic Vester Formation, central Oregon	11	50-13-37	5-13-82	Dickinson and others, 1979	Lithic Recycled
22. Lower to Middle Jurassic units, central Oregon	9	3-25-72	2-25-73	Dickinson and others, 1979	Undissected Arc
23. Upper Jurassic Lonesome Formation, central Oregon	8	13-28-59	5-28-67	Dickinson and others, 1979	Undissected Arc
24. Jurassic formations, western Wyoming	5	80-4-16	79-4-17	Schwab, 1969	Quartzose Recycled
25. Jurassic Newby and Ladner Groups, Washington and British Columbia	14	5-30-65	5-30-65	Tennyson and Cole, 1978; Cole, 1973	Undissected Arc
26. Jurassic Kunga and Maude Formations, Queen Charlotte Islands	7	1-23-76	- - -	Brown, 1968	Undissected Arc

Map 6 (mid-Late Jurassic to Latest Cretaceous)

Age, Unit, Location	N	QFL	QmFLt	Reference	Provenance Type
1. Cretaceous Peedee Formation, North Carolina	2	99-1-0	98-1-1	Harris, 1978	Craton Interior
2. Cretaceous sandstones, Mississippi Valley	7	98-2-0	96-2-2	Potter and Pryor, 1961	Craton Interior
3. Cretaceous Woodbine Formation, Texas	15	70-30-0	62-30-8	Dodge, 1968	Transitional Continental
4. Lower Cretaceous Inyan Kara Group, Black Hills, South Dakota	49	92-6-2	89-6-5	Gott and others, 1974	Craton Interior
5. Upper Cretaceous Point Lookout Sandstone, San Juan Basin, New Mexico	2	55-21-24	40-21-39	Cumella, 1981	Transitional Recycled
6. Upper Cretaceous Gallup sandstone, San Juan Basin, New Mexico	2	78-12-10	74-12-14	Cumella, 1981	Quartzose Recycled
7. Upper Jurassic Morrison Formation, central Colorado	18	89-7-4	85-7-8	Brady, 1969	Craton Interior
8. Upper Jurassic Morrison Formation, southeastern Utah	124	82-13-5	76-13-11	Cadigan, 1967	Craton Interior
9. Lower Cretaceous Burro Canyon Formation, southwestern Colorado	6	98-2-0	95-2-3	Shawe, 1968	Craton Interior
10. Upper Jurassic Saltwash Member of Morrison Formation, southwestern Colorado	38	94-6-0	88-6-6	Shawe, 1968	Craton Interior
11. Upper Jurassic Brushy Basin Member of Morrison Formation, southwestern Colorado	13	89-9-2	79-9-12	Shawe, 1968	Craton Interior
12. Upper Cretaceous Dakota Sandstone, southwestern Colorado	4	94-6-0	81-7-12	Shawe, 1968	Craton Interior
13. Lower Cretaceous sandstones, Third Creek oil field, Denver Basin, Colorado	2	92-1-7	- - -	Reinert, 1976	Indeterminate Recycled
14. Lower Cretaceous sandstones, Hilight Muddy oil field, Powder River Basin, Wyoming	5	- - -	90-1-9	Berg, 1976	Craton Interior
15. Lower Cretaceous Fall River Formation, Powder River Basin, Wyoming	165	94-2-4	93-2-5	Chisholm, 1970	Craton Interior

Age,	Unit, Location	N	QFL	QmFLt	Reference	Provenance Type
16.	Upper Cretaceous Dakota Group, central Rocky Mountains	12	98-1-1	95-1-4	Mackenzie and Poole, 1962	Craton Interior
17.	Upper Cretaceous Frontier Formation, Bighorn Basin, Wyoming	24	76-14-10	42-14-44	Siemers, 1975	Transitional Recycled
18.	Jurassic-Cretaceous units, western Wyoming	8	64-4-32	62-5-33	Schwab, 1969	Quartzose Recycled
19.	Upper Jurassic Ellis Group, southwestern Montana	?	63-0-37	48-0-52	McLane, 1971; Suttner and others, 1981	Transitional Recycled
20.	Lower Cretaceous Kootenai Formation, southwestern Montana	?	39-1-60	42-1-57	McLane, 1971; Suttner and others, 1981	Transitional Recycled
21.	Upper Jurassic Morrison Formation, southwestern Montana	30	95-2-3	78-2-20	Suttner, 1969	Quartzose Recycled
22.	Lower Cretaceous Kootenai Formation, southwestern Montana	24	95-1-4	64-1-35	Suttner, 1969	Quartzose Recycled
23.	Lower Cretaceous Blackleaf Formation, eastern facies, southwestern Montana	14	- - -	96-1-3	Suttner and others, 1981	Craton Interior
24.	Lower Cretaceous Blackleaf Formation, western facies, southwestern Montana	11	- - -	61-1-28	Suttner and others, 1981	Quartzose Recycled
25.	Lower Cretaceous Blackleaf Formation, upper parts, southwestern Montana	57	- - -	42-11-47	Suttner and others, 1981	Transitional Recycled
26.	Upper Jurassic Eugenia Formation, Baja California	9	12-18-70	6-18-76	Boles, 1978	Undissected Arc
27.	Upper Jurassic and Lower Cretaceous Great Valley petrofacies, Sacramento Valley, California	82	33-21-46	23-21-56	Dickinson and others, 1982	Transitional Arc
28.	Upper Cretaceous lithic-rich petrofacies, Great Valley Sequence, California	90	26-30-44	24-30-46	Dickinson and others, 1982	Transitional Arc
29.	Upper Cretacous lithic-poor petrofacies, Great Valley Sequence, California	106	35-36-29	32-36-32	Dickinson and others, 1982	Dissected Arc

Age, Unit, Location	N	QFL	QmFLt	Reference	Provenance Type
30. Jurassic-Cretaceous Mount Eylar and Las Aguilas Franciscan sequences, Diablo Range, California	68	36-51-13	29-51-20	Jacobson, 1978	Dissected Arc
31. Middle Cretaceous units, central Oregon	5	18-26-56	12-26-62	Dickinson and others, 1979	Transitional Arc
32. Upper Cretaceous Winthrop Sandstone and Ventura Formation, Cascade Range, Washington	35	26-53-21	26-53-21	Tennyson and Cole, 1978; Cole, 1973	Dissected Arc
33. Mid-Cretaceous Virginian Ridge Formation, Washington	18	45-25-30	5-25-70	Tennyson and Cole, 1978; Cole, 1973	Indeterminate Recycled
34. Jurassic Twisp Formation, Washington and British Colombia	14	5-30-65	5-30-65	Tennyson and Cole, 1978; Cole, 1973	Undissected Arc
35. Upper Cretaceous chert-rich sandstones, Nanaimo Basin, British Columbia	35	57-21-22	30-21-49	Pacht, 1980	Indeterminate Recycled
36. Upper Mesozoic sandstones, Canadian Rocky Mountains	16	67-0-33	37-0-63	Rapson, 1965	Transitional Recycled
37. Upper Cretaceous Belly River Formation, Alberta	8	51-20-29	45-20-35	Lerbekmo, 1963	Transitional Recycled
38. Lower Cretaceous, lower Blairmore Group, Alberta	8	74-0-26	38-0-62	Mellon, 1967	Transitional Recycled
39. Lower Cretaceous, middle Blairmore Group, Alberta	58	22-24-54	16-24-60	Mellon, 1967	Transitional Arc
40. Lower Cretaceous, upper Blairmore Group, Alberta	16	46-6-48	32-6-62	Mellon, 1967	Transitional Recycled
41. Upper Valanginian Longarm Formation, Queen Charlotte Islands	1	19-39-42	- - -	Brown, 1968	Transitional Arc
42. Albian Haida Formation, Queen Charlotte Islands	1	33-28-39	- - -	Brown, 1968	Dissected Arc
43. Lower Upper Cretaceous Honna Formation, Queen Charlotte Islands	8	23-31-46	- - -	Brown, 1968	Transitional Arc
44. Mid-Upper Cretaceous Skidegate Formation, Queen Charlotte Islands	8	22-52-26	- - -	Brown, 1968	Dissected Arc

Map 7 (Latest Cretaceous through Paleogene)

Age, Unit, Location	N	QFL	QmFLt	Reference	Provenance Type
1. Cretaceous-Tertiary clastics, middle Mississippi Valley	12	98-0-2	95-0-5	Potter and Pryor, 1961	Craton Interior
2. Cretaceous units, Upper Mississippi Embayment	7	98-2-0	96-2-2	Pryor, 1960	Craton Interior
3. Oligocene Chita (Catahoula) Formation, southern Texas	12	80-5-15	77-5-18	McCracken, 1979	Quartzose Recycled
4. Oligocene Gueydan (Catahoula) Formation, southern Texas	25	36-27-37	33-27-40	McBride and others, 1968	Dissected Arc
5. Oligocene sandstones, Seeligson field, Texas	22	68-15-17	45-15-40	Nanz, 1954	Transitional Recycled
6. Eocene Sabinetown Carrizo contact, Texas	11	82-7-11	78-7-15	Harris, 1962	Quartzose Recycled
7. Eocene-Oligocene Vieja Group, Trans-Pecos Texas	21	6-23-71	6-23-71	Walton, 1977	Undissected Arc
8. Paleogene Galisteo Formation, Hagan Basin, New Mexico	36	69-29-2	65-29-6	Gorham, 1979	Transitional Continental
9. Cretaceous Pictured Cliffs Sandstone, San Juan Basin, New Mexico	52	40-13-47	38-13-49	Cumella, 1981	Transitional Recycled
10. Paleocene Nacimiento Formation, San Juan Basin, New Mexico	11	84-10-6	73-10-17	Rains, 1981	Quartzose Recycled
11. Cretaceous Tuscher and Farrer Formations, central Utah	23	69-8-23	62-8-30	Keighin and Fouch, 1981	Quartzose Recycled
12. Cretaceous Neslen Formation, central Utah	13	84-2-14	81-2-17	Keighin and Fouch, 1981	Quartzose Recycled
13. Oligocene Duchesne River Formation, Uinta Basin, Utah	46	87-2-11	73-2-25	Andersen and Picard, 1974	Quartzose Recycled
14. Paleocene-Eocene Hoback Formation, western Wyoming	109	95-2-3	71-2-27	Spearing, 1969	Quartzose Recycled
15. Paleocene Fort Union Formation, Wind River Basin, Wyoming	7	92-2-6	70-2-28	Courdin and Hubert, 1969	Quartzose Recycled
16. Paleocene-Eocene Hoback Formation, western Wyoming	1	69-2-29	68-2-30	Schwab, 1969	Quartzose Recycled
17. Eocene Wagon Bed Formation, Wind River Basin, Wyoming	19	2-16-82	2-16-82	Surdam and Stanley, 1980	Undissected Arc

Age, Unit, Location	N	QFL	QmFLt	Reference	Provenance Type
18. Eocene sandstones, Green River Basin, Wyoming	33	38-30-32	34-30-36	Surdam and Stanley, 1980	Dissected Arc
19. Paleogene plagioclase-rich arkoses, High Plains	183	29-60-11	28-60-12	Stanley, 1976	Basement Uplift
20. Paleogene volcaniclastic sandstones, High Plains	110	25-19-56	23-19-58	Stanley, 1976	Transitional Arc
21. Paleogene Bozeman Group, southwestern Montana	13	- - -	37-59-4	Suttner and others, 1981	Basement Uplift
22. Paleogene Milligan Creek and Dunbar Creek Formations, southwestern Montana	9	22-52-26	- - -	McLane, 1971	Transitional Arc
23. Cretaceous Difunta Group, northeastern Mexico	80	25-32-43	- - -	McBride, 1974	Transitional Arc
24. Matrix of Eocene conglomerates, southern California continental borderland	10	42-37-21	41-37-22	Howell and Link, 1979	Dissected Arc
25. Paleogene arkoses, Santa Ynez Mountains, California	25	35-56-9	33-56-11	Helmold, 1980	Basement Uplift
26. Oligocene Sespe Formation, Transverse Ranges, California	81	36-32-32	35-32-33	McCracken, 1972	Dissected Arc
27. Uppermost Cretaceous Franciscon Complex, Nacimiento Block, California	59	40-47-13	37-47-16	Dickinson and others, 1982	Dissected Arc
28. Uppermost Cretaceous units, Salinian Block, California	64	44-49-7	- - -	Lee-Wong and Howell, 1977	Basement Uplift
29. Cretaceous-Paleocene sandstones, Santa Lucia Mountains, California	9	61-34-5	- - -	Ruetz, 1979	Transitional Continental
30. Eocene The Rocks Sandstone, Santa Lucia Range, California	18	47-40-13	37-40-23	Link and Nilsen, 1980	Dissected Arc
31. Eocene Domengine Formation, Potrero Hills, California	2	81-15-4	74-15-11	Todd and Monroe, 1968	Transitional Continental
32. Eocene Capay Formation, Capay Valley, California	9	38-40-22	35-40-25	Baker, 1975	Dissected Arc
33. Paleogene Franciscan Complex, Northern Coast Ranges, California	13	30-44-26	27-44-29	Dickinson and others, 1982	Dissected Arc
34. Uppermost Cretaceous sandstones, Sacramento Valley, California	15	30-38-32	26-38-36	Dickinson and others, 1982	Dissected Arc

e, Unit, Location	N	QFL	QmFLt	Reference	Provenance Type
. Eocene sandstones, Klamath Mountains, Oregon	38	35-30-35	29-30-41	Dott, 1965	Dissected Arc
. Eocene deltaic sediments, Coos Bay, Oregon	43	42-26-32	- - -	Dott, 1966	Dissected Arc
. Eocene Tyee Formation, Oregon Coast Range	56	32-31-37	26-32-42	Lovell, 1969	Dissected Arc
. Eocene Coaledo Formation, Oregon Coast Range	40	30-46-24	28-46-26	Ryberg, 1978	Dissected Arc
). Eocene-Oligocene sandstones, Chehalis Basin, Washington	18	31-28-41	- - -	Galloway, 1974	Dissected Arc
). Paleogene nonmarine sandstones, Cascade Range, Washington	145	43-46-11	29-46-25	Frizzell, 1979	Dissected Arc
1. Middle Tertiary sandstones, Olympic Peninsula, Washington	127	38-32-30	28-32-40	Stewart, 1970	Dissected Arc
2. Cretaceous plagioclase-rich arkoses, Nanaimo Basin, British Columbia	63	46-45-9	43-45-12	Pacht, 1980	Basement Uplift
3. Cretaceous lithic arkoses, Nanaimo Basin, British Columbia	46	43-37-20	37-37-26	Pacht, 1980	Dissected Arc
4. Uppermost Cretaceous Nanaimo Group, British Columbia	20	36-43-21	35-43-22	Page, 1972	Dissected Arc
5. Paleocene Paskapoo Formation, Alberta	46	44-12-44	33-12-55	Carrigy, 1971	Transitional Recycled
6. Paleocene Paskapoo Formation, Alberta	40	70- 3-27	42- 3-55	Carrigy, 1971	Transitional Recycled
7. Cretaceous Frenchman Formation, Saskatchewan	12	25-14-61	21-14-65	Misko and Hendry, 1979	Transitional Arc
8. Paleocene Ravenscrag Formation, Saskatchewan	18	36-10-54	34-10-56	Misko and Hendry, 1979	Transitional Recycled

Map 8 (Neogene)

Age, Unit, Location	N	QFL	QmFLt	Reference	Provenance Type
1. Quaternary sands, Minas Basin, Bay of Fundy	?	23-58-19	22-58-20	Balazs and Klein, 1972	Dissected Arc
2. Quaternary of western North Atlantic, eastern subprovince	10	78-20-2	68-20-12	Hubert and Neal, 1967	Transitional Continental
3. Quaternary of western North Atlantic, western subprovince	92	87-11-2	79-11-10	Hubert and Neal, 1967	Craton Interior

Age, Unit, Location	N	QFL	QmFLt	Reference	Provenance Type
4. Quaternary shelf-break sands, mid-Atlantic states	16	68-32-0	- - -	Kelling and others, 1975	Transitional Continental
5. Holocene sand, Susquehanna River mouth, Chesapeake Bay	1	- - -	71-7-22	Potter, 1978	Quartzose Recycled
6. Quaternary sands, Hatteras Abyssal Plain	23	76-18-6	73-18-9	Cleary and Connally, 1974	Transitional Continental
7. Holocene fluvial sand, Piedmont streams	7	28-63-9	- - -	Basu, 1976	Basement Uplift
8. Holocene sand, Mississippi River mouth, Louisiana	1	- - -	65-13-22	Potter, 1978	Quartzose Recycled
9. Quaternary sand, Mississippi delta, Louisiana	1	69-10-21	- - -	Davies and Ethridge, 1975	Indeterminate Recycled
10. Quaternary sand, Sabine Lake, Louisiana	4	80-17-3	76-17-7	Kane, 1963	Transitional Continental
11. Holocene sand, Rio Grande River mouth, Texas	1	- - -	46-17-37	Potter, 1978	Transitional Recycled
12. Holocene fluvial sands, Wyoming and Nebraska	12	65-33-2	62-33-5	Breyer and Bart, 1978	Transitional Continental
13. Neogene High Plains units, feldspathic petrofacies, Wyoming	147	55-25-20	46-25-29	Stanley, 1976	Indeterminate Recycled
14. Holocene sand, Colorado River delta, Mexico	1	- - -	61-21-18	Potter, 1978	Quartzose Recycled
15. Holocene Salton Basin alluvium, California	7	46-47-7	45-47-8	Van de Kamp and others, 1976	Basement Uplift
16. Pliocene Pico Formation, Ventura Basin, California	12	37-33-30	35-33-32	Helmold, 1980	Dissected Arc
17. Tertiary units of Salinian Block, California	36	56-39-5	55-39-6	Graham, 1976	Transitional Continental
18. Neogene "blue sand" units, California Coast Ranges	13	16-25-59	16-25-59	Lerbekmo, 1961	Transitional Arc
19. Holocene Columbia River sand, Oregon	1	42-27-31	- - -	Whetten and Hanson, 1969	Dissected Arc
20. Holocene sand, Columbia River mouth, Oregon	1	- - -	23-35-42	Potter, 1978	Transitional Arc
21. Neogene units, Grays and Chehalis Basins, southwestern Washington	10	28-29-43	- - -	Galloway, 1974	Transitional Arc

ge,	Unit, Location	N.	QFL	QmFLt	Reference	Provenance Type
2.	Miocene Astoria and Crescent Formations, southwestern Washington	12	42-39-19	28-39-33	Wolfe and McKee, 1972	Dissected Arc
3.	Holocene sand, Fraser River mouth, British Columbia	1	- - -	12-7-81	Potter, 1978	Lithic Recycled
4.	Holocene sand, Fraser River delta, British Columbia	1	42-11-47	- - -	Garrison and others, 1969	Indeterminate Recycled
5.	Neogene Skonum Formation, Queen Charlotte Islands	6	50-30-20	- - -	Brown, 1968	Indeterminate Recycled

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