

Index

Page numbers in *italic* denote figures. Page numbers in **bold** denote tables.

- 'Acadia Terrane' 27–28
- Acadian Orogeny, Marcellus Subgroup 271
- accretionary lapilli, Alamo Breccia 146, 149
- aeromagnetic anomalies, hydrocarbons 7, 189
- Alaknanda, pyrrhotite remagnetization 165
- Alamo Breccia
 - bolide impact 146
 - breccia contact testing 155–156
 - demagnetization 149–150
 - geochemistry 157–158
 - geological background 146–148
 - IRM 149–150
 - magnetic components 149, *150*, 152–153, 158–159
 - palaeomagnetism 4, **151**, 152–157
 - petrography 150, 157–158
 - remagnetization 145–160
 - fluid conduit 145–146, 159–160
 - methodology 149–151
 - rock magnetism *156*, 157–158
 - stratigraphy 146–147
 - strontium isotope analysis 150–151, 158, 159, 160
 - tilt testing 149, *152*, 153, 155
 - vein contact testing 156–157
 - VRM *150*, 152
- Alcaparrosa Formation
 - remagnetization 66, 67
 - rock magnetism 67
- Alfaro horizon 73
- Alleghenian Orogeny 32
 - Marcellus Subgroup 272
- Alsen Formation 235, 236
- Ama Drima Massif 166, 175
- Amaranth Formation 117, 120
- Anatolian-Tauride Block 259–260, 266
- Andean Chain, tilting 66
- anhydrite
 - Barnett Shale 96, *100*
 - Red River carbonates 109, *110*
- Antalyan Nappes 266
- Antler Orogeny 146
- Appalachian Basin 271
 - Late Palaeozoic remagnetization event 14, 230, 253
 - remagnetized carbonates 231–247
- Appalachian Mountains, fluid migration 2, 148
- apparent polar wander path (APWP) 1
 - Mt Kidd 130, *136*
 - North America 153, *154*, 155, 159
 - and remagnetization age 14, 37–38, *41*
 - South America 56–59, **60**
- Araras Group
 - clay mineral transformation 63–64
 - organic maturation 62–63
 - remanent magnetization 60–64
- Arbuckle Mountains, fluid migration 4, 5, 148
- Argentine Precordillera
 - rock magnetism 66–67
 - San Rafaelic remagnetization 66–67, 78, 79
 - Andean tilting 66
- Avalon terrane 271
- bacteria, and hydrocarbons 62–63, 196, 244
- Bambuí Group
 - Cambrian remagnetization 64–66, 78
 - coercivity components 64
 - palaeomagnetic data 64
 - palaeopoles **58**, 64
 - rock magnetism 64–65
- barite
 - Barnett Shale 96, *100*
 - Canadian Cordillera 132, *140*
- Barnett Shale
 - composition 91
 - diagenesis 94, 96–99, *100*
 - fractures 97–99, *100*
 - and fluid migration 103–104
 - geological setting 90–92
 - magnetic mineralogy 94
 - natural gas 89, 90
 - palaeomagnetism 4, 89–104
 - palaeopoles 92, 94, **97**, 100, *102*, 103
 - petrography 94, 96–99, *100*
 - sampling 92–94
- Basin and Range extension 146
 - palaeomagnetic studies 148, 153
- Becraft Limestone 235, 236
- Belden Formation, organic matter
 - maturation 9, *10*
- Bencliff Grit, oil sands 190
- Bend Arch 90
- Besnus transition
 - Marcellus Shale 278–279
 - Mississippian carbonates 127, *130*, 134
 - remagnetized Palaeozoic carbonates 234
- Bey Dağları non-magnetized sediment 261–263
- biodegradation, oil 196
- Birdbear Formation 109, *110*
 - palaeomagnetism 109, 115–117
 - rock magnetism 111–114
- Birdtail-Waskada Zone 119
- bitumen
 - Araras Group 63
 - Canadian Cordillera 132, *140*
 - Wessex Basin 196
- bolide impact
 - Alamo Breccia 146
 - and remagnetization, Williston Basin 119–120
- breccia contact testing, Alamo Breccia 155–156
- brine mobilization, Basin and Range area 148
- Broadtop synclinorium 272
- Bure claystones, heating experiments 182–183, 184
- burial
 - claystones, and magnetostratigraphy 181–186
 - remagnetization mechanisms 8–11

- Cabo Magmatic Province, palaeopoles 59, **60**
 Calencó Member 71
 Calstan Hartney Well, Williston Basin
 107, 108, 110, 119–120
 Cambrian, South America
 APWPs 56, 57
 remagnetizations 55–56, 60–66
 Campo Alegre pole 56
 Canadian Cordillera
 fold and thrust belt 124
 Mississippian carbonates
 burial temperature 133–134
 coercivity components 127, 128, **129**
 fluid conduit tests 130, 136, 137, 138, 139
 geochemistry 132, 140
 geological setting 124–125
 multiple remagnetization 123–141
 palaeomagnetism 4, 126–127
 palaeopoles 130, 136
 petrology 131–132, **134, 135**
 rock magnetism 127–129, 130, 132
 tilt tests 129–130, **131, 133, 134–136, 139**
 Carapacha Basin 70, 71–72, 78, 79
 Carapacha Formation 71
 carbonates
 magnetite 28–33
 mineralogy 33–36
 primary magnetic particles 244–245
 remagnetized Palaeozoic 230–247
 grain-scale anisotropy 231–234
 mineralogy 234–235
 new research 235–247
 review of research 230–235
 rock magnetic signature 246
 rock magnetism 231, 235–237
 sources of iron 245
see also Helderberg Group
 Carbonera Formation 201
 magnetic minerals 212–214
 rock magnetic properties 202–203, 207–209
 Carboniferous, South America, APWPs 56–57
 Catskill Delta 271
 Cement oil field, aeromagnetic anomalies 7
 Central Alkaline Magmatic Province, palaeopoles 59, **60**
 Cerro de los Viejos Complex 71
 Cerro Totorá Formation, San Rafael
 remagnetization 66, 79
 Cerro Victoria Formation 74, 78
 Chainman Shale, organic maturation 9, 10
 Chartreuse Massif, claystone burial 185–186
 Cherry Valley limestone 271
 Choyoi Magmatic Belt 78, 79
 Chugwater Formation 24
 clay diagenesis
 Araras Group 63–64
 and remagnetization 8–9, 11, 245
 claystones
 burial and remagnetization 181–186
 burial model 183–184, 185
 Clymene Ocean closure 55–56
 coercivity 14
 Alamo Breccia 157, 158
 Bambuí Group 64
 Barnett Shale 98, **99**
 Golfo San Jorge Basin 222–226
 Marcellus Shale 280
 Mississippian carbonates 127, 128, **129**
 remagnetized carbonates 231, 234
 TSS 173
 Colbert Rhyolite, fluid migration 4, 148
 convexity error 256
 Copper Harbour red beds 26
 Creer's hypothesis 23–24
 Cretaceous, South America
 APWPs 57, 58–59, **60**
 remagnetization 56, 75, 79–80
 cumulative log-Gaussian analysis 257
 Barnett Shale 93, 94
 Marcellus Shale 276, 280
 Mississippian carbonates 127, 128, **129**
 Day plots 254
 remagnetized carbonates 33–34, 233, 234
 Wessex oil sands 193
 deformation, as remagnetization mechanism 4, 123
 demagnetization
 Alamo Breccia 149–150
 alternating field (AF)
 Trenton Limestone 28–29
 TSS 171, 172, 173
 Canadian Cordillera 125, 126–127
 low-temperature thermal (LTD) 13, 14
 Barnett Shale 92, 94
 Marcellus Shale 272–273, 274, 276
 thermal
 Barnett Shale 92
 Marcellus Shale 278
 TSS 171, 172, 173
 Williston Basin carbonates 109, 115, 116
 Desert Limestone, organic maturation 9, 10
 determination, coefficient of 256–257
 Devonian
 Alamo Breccia 145–160
 Marcellus Shale 271
 diagenesis 1–2
 Barnett Shale 94, 96–99, 100
 hydrocarbon related, Saltarín 1A well 200, 211–214
 and orogenesis 123
see also clay diagenesis
 direct signal analysis, Saltarín 1A well 200, 203
 dolomite
 Red River carbonates 108–109, 110
 weathering fluids 7
 dolomitization
 Canadian Cordillera 136–137
 Western Canada Basin 6
 dolostone
 Mirassol d'Oeste Formation, magnetization 60
 Red River carbonates 108–109
 doming, Himalaya 175–176
 Durness Group, fluid migration 5–6
 Ediacaran-Cambrian, South America, APWPs 56, 57, **58**
 Ellenburger Group 91, 92, 93
 Ellesmerian orogeny 32
 end-member modelling 254–256
 Bey Dağları non-magnetized sediment 261–263
 coefficient of determination 256–257

- convexity error 256
- optimal number 256–257
- Organyà Basin 258–259, 260
- southern Turkey 259–266
- Everest, pyrrhotite remagnetization 165, 166
- fault zones, and CRMs 5–6
- ferrimagnetic particles, extraterrestrial 244
- fluid conduit tests (FCTs) 2, 3
 - Canadian Cordillera 125, 130, 136, 137, 138, 139
- fluid migration 2, 253
 - Alamo Breccia 145–146, 149, 155, 159–160
 - Barnett Shale 89, 103–104
 - Basin and Range area 148, 159–160
 - Itajaí Basin 75, 77, 79
 - orogenic fluids 2–6
 - São Francisco Basin 65–66
 - Williston Basin carbonates 118–119, 120
- fold testing 74, 76, 78, 79
- fold and thrust belts
 - Canadian Cordillera 124
 - diagenesis and orogenesis 123
 - Hudson Valley 235
 - Taurides 263, 266
- folding
 - Himalaya 173, 174
 - and magnetization 11–13, 30–31
- Forestburg Lime 91, 93, 98
- Fort Worth Basin 89, 90
 - formation 101–102
 - stratigraphy 91
- fractures
 - Barnett Shale 97–99, 100
 - Kindblade Formation 2
- framboids
- magnetite
 - New York remagnetized carbonates 35, 36, 37
 - Wessex Basin oil sands 192–193, 195–196
- pyrite 63, 235, 245
- Saltarín 1A well 203, 205, 210, 211, 212
- Front Ranges 124–125
- gas
 - Barnett Shale 89, 90
 - Marcellus Shale 271
- Geocentric Axial Dipole (GAD) hypothesis 41
- goethite 49, 245
 - Alamo Breccia 156, 157
 - Marcellus Shale 275, 276, 278, 279
 - Saltarín 1A well 207, 209, 212
 - weathering fluids 7
- Golfo San Jorge Basin
 - hydrocarbon exploration 8
 - magnetic susceptibility 218, 219–221
 - rock magnetism studies 218–227
 - correlation analysis 226
 - IRM acquisition and hysteresis loops 221–226
 - sampling 218–219
- Gondwana
 - APWPs 56–58, 61
 - assemblage 55, 56, 61–62, 65, 78
- Gondwanides Fold Belt, remagnetizations 67–73
- Great Glen Fault, and ‘Acadia Terrane’ 27–28
- ‘Greater India’, extent of 163, 165, 173
- greigite 63
 - formation 254
 - in claystone burial 181, 183–184
 - magnetosomal 44, 45
 - remagnetization 13, 45–48
- Guafita oil field 200, 210
 - diagenesis 211
- Guayabo Formation 201–202
 - framboids 203, 205, 210
 - hematite 205–206, 207, 212–214
 - IRM curves, DSA 203, 204, 206
 - magnetite 203, 206, 207, 212–214
 - pyrrhotite 206–207, 212–214
 - rock magnetic properties 202–207
- Guia Formation
 - Cambrian remagnetization 60–64, 78
 - palaeopoles 58
- Guilmette Formation 146, 147
- Hamilton Group 271, 272
- Hancock Summit 146
 - breccia contact testing 155–156
 - magnetic components 151, 153, 158
 - magnetization decay 150
 - remagnetization tests 145–146, 149
 - rock magnetism 156, 157–158
 - tilt testing 149, 152, 153, 155
 - veins 147, 148
 - contact testing 149, 155, 156–157
- Hartney structure 6, 119–120
- Helderberg Group 4, 148, 231, 235–247
 - burial diagenesis 4
 - grain-scale anisotropy 237–238
 - mineralogy 234, 242–244
 - stable SD fraction 240–242
 - superparamagnetic fraction 238–240
 - tilt tests 11
- hematite
 - Canadian Cordillera 132, 140
 - Carapacha Basin 70, 71, 79
 - delayed remanence acquisition 43–44
 - Itajaí Basin 75
 - Marcellus Shale 275, 276, 277, 279, 280
 - red beds 24–25, 26
 - Río de la Plata Craton 74–75
 - Saltarín 1A well 205–206, 207, 208, 209, 211–214
 - San Carlos Member 73, 79
 - Tunas Formation 68
 - weathering fluids 7
- Herrada Member 73
- Higher Himalayan Crystalline (HHC), pyrrhotite remagnetization 166, 170, 171, 175, 177
- Highland Boundary Fault, fluid migration 6
- Himalaya
 - pyrrhotite remagnetization 13, 163–177
 - history of research 164–166
 - and tectono-metamorphism 173–176
 - see also Tethyan Sedimentary Series (TSS)
- Honey Creek Formation 4, 148
- Hoyada Verde Formation, San Rafaelic remagnetization 66–67

- hydrocarbons
 - aeromagnetic anomalies 7
 - and authigenic magnetite 7
 - Guia Formation 62–63
 - and bacteria 62–63, 196, 244
 - Barnett Shale 89, 90
 - Canadian Cordillera, Front Ranges 125, 136
 - and magnetic minerals 189, 217
 - Golfo San Jorge Basin 218–227
 - Wessex Basin oil sands 190–197
 - and organic matter 196, 197
 - Saltaín 1A well 200, 210–211
 - and diagenesis 211–214
- hydrothermal circulation 6
 - Itajaí Basin 75, 77, 79
 - Moine Thrust Zone 5
- hysteresis properties 14, 254
 - Golfo San Jorge Basin 222, 223
 - Marcellus Shale 279–280
 - New York State 36, 37, 38
 - Prezzo Formation 48
 - remagnetized carbonates 33–34, 35, 230, 231–239, 242, 246
 - Wessex oil sands 193
- illite, Araras Group 64
- illitization 8–9, 11, 103, 182, 245
- Interlake Group 109, 110
 - palaeomagnetism 109, 114–117
 - (re)magnetization 117–120
 - rock magnetism 111–114
- iridium anomaly, Alamo Breccia 146
- iron oxide, dissolution 181, 183
- iron sulphide
 - bitumen 63
 - formation 181
 - and primary magnetic particles 245
 - Saltaín 1A well 211–212
- Isparta Angle, rotation 261, 263
- Itabaiana dykes, palaeopole 61, 62
- Itajaí Basin
 - hydrothermal circulation 75, 77, 79
 - palaeopole 56, 75
 - remagnetization 56, 60, 75, 76, 77, 78
- Kashmir Basin, pyrrhotite remagnetization 164
- Kiaman Reverse Polarity Superchron 24, 68, 73
- Kindblade Formation, fractures 2
- Knox Dolomite
 - mineralogy 234
 - rock magnetism 231, 236
- kurtosis 257
- La Flecha Formation
 - rock magnetism 66–67
 - San Rafaelic remagnetization 66, 79
- La Silla Formation, rock magnetism 66–67
- La Tinta Formation 74
- Laramide orogeny 32
- Late Palaeozoic remagnetization event
 - Appalachian Basin 2, 230, 253
 - Laurentia 39–40, 41
- lateritization, Creer's hypothesis 23–24
- Laurasia, palaeoreconstruction 57–58
- Laurentia
 - Late Palaeozoic remagnetization 39–40, 41
 - palaeopoles 24, 37, 41
- León Formation 201
 - magnetic minerals 212–214
 - rock magnetic properties 202–203, 207–209
- Line Creek anticline 124, 125
 - palaeopole and APWP 130, 136
 - remagnetization investigation
 - CRM 134–135
 - fluid conduit tests (FCTs) 137, 138, 139
 - palaeomagnetism 125–127
 - petrology 131–132, 134
 - rock magnetism 127–129, 130, 132
 - tilt tests 129, 131, 133, 139
- Llano Uplift 90
- Llanos foreland basin
 - geological setting 201–202
 - hydrocarbons 211
 - Saltaín 1A well 199–214, 200
- loess, China, Matuyama-Brunhes Boundary 42–43
- Lycian Nappes 262, 263, 266
- maghemite
 - Itajaí Basin 75
 - Marcellus Shale 275, 276, 277, 280
- magnetic susceptibility
 - and hydrocarbons 7–8
 - Golfo San Jorge Basin 218, 219–221
 - Wessex oil sands 193–194, 196
- magnetite
 - Alamo Breccia 156, 157, 158
 - Alcaparrosa Formation 67
 - authigenesis
 - and fluid migration 4
 - and hydrocarbons 7
 - Guia Formation 62–63
 - Canadian Cordillera 133
 - CRM 136–138
 - Carapacha Basin 70, 71
 - delayed remanence acquisition 41–45
 - diagenetic 14, 254
 - formation in claystone burial 182, 183–186
 - Itajaí Basin 75
 - MD, Marcellus Shale 274, 275, 276, 277–280
 - primary magnetization 244–245
 - remagnetized Palaeozoic carbonates 28–29, 234–235, 242–243
 - mineralogy 33–36
 - remagnetization age 36–41
 - Rosales horizon 73
 - Saltaín 1A well 203, 206, 207, 208, 209, 211, 212–214
 - SD 244
 - SP 244
 - Trenton Limestone 29
 - TSS 171
 - Wessex Basin oil sands 195–196
- magnetization *see* demagnetization; remagnetization; remanent magnetization
- magnetometers, superconducting 229
- magnetostratigraphy
 - claystone burial remagnetization 181, 183
 - magnetite window 184–186

- Mahantango Formation 271
 Main Central Thrust 164, 165, 174
 Major Gercino Shear Zone 79
 Manang area, pyrrhotite remagnetization
 164–165
 Manlius Formation 235, 236
 mineralogy 234
 marcasite, Barnett Shale 96
 Marcellus Shale 271–280
 CLG analysis 276
 deformation 272
 deposition 271
 geological setting 271–272
 IRM 273–274
 low-temperature experiments 274
 magnetic components 276–279
 NRM 272
 sampling 272
 marl, Sicily, delayed remanence
 acquisition 44–45
 Maturin Sub-Basin, hydrocarbon exploration 8
 Matuyama-Brunhes Boundary,
 Chinese loess 42–43
 metamorphism, Himalaya TSS 170, 173–176
 microbes, hydrocarbon maturation *see* bacteria,
 and hydrocarbons
 mid-ocean-ridge basalts, anisotropy 232–233
 Milari, pyrrhotite remagnetization 165
 Mineral Wells Fault 89, 90
 mineralization, MVT 7, 33, 119
 Mirassol d'Oeste Formation 60, 61
 Mississippi-Valley-type deposits 7, 33, 119
 Mississippian
 Barnett Shale 4, 89–104
 Canadian Cordillera
 multiple remagnetization 123–141
 Rundle Group 124–125
 Moenkopi Formation 24, 26, 27
 Moine Thrust Zone, fluid migration 5, 148
 Morin transition, Marcellus Shale 279, 280
 Mt Irish 146
 breccia contact testing 155, 156
 magnetic components 151, 153, 158
 magnetization decay 150
 remagnetization tests 145, 149
 rock magnetism 156, 157–158
 tilt testing 149, 152, 153, 155
 Mt Kidd syncline 124, 125
 palaeopole and APWP 130, 136
 remagnetization investigation
 CRM 134–136
 fluid conduit tests (FCTs) 136, 137
 methodology 125
 palaeomagnetism 126–127
 petrology 131–132, 135
 rock magnetism 127–129, 130, 132
 tilt tests 129–130, 132, 133, 139
 Muenster Arch 90
 Mupe Bay oil sands 190–191
 magnetic characterization 196–197

 nappes, Taurides 263, 266
 Needmore Formation 271
 North Patagonian Massif 72, 73, 78

 Oatka Creek Formation 271
 oil sands
 Wessex Basin 190–197
 biodegradation 196
 magnetic characterization 193–197
 magnetite 195–196
 oil content and magnetic signature 196–197
 oil transport 196–197
 organic matter 191–192, 196, 197
 SEM and EDX 192–193
 siderite 194–195
 Old Red Sandstone
 fluid migration 6
 organic maturation 10
 Onondaga Formation 271, 272
 mineralogy 234
 NRM measurement 272
 rock magnetism 231, 240
 Opalinus claystones, heating experiments
 182–183
 ophiolites, Taurides 266
 Ordovician, Trenton Limestone 28–29
 ores, MVT 7, 33, 119, 253
 organic matter
 and remagnetization 9–11
 Guia Formation 62–66
 Wessex oil sands 191–192
 magnetic signature 196, 197
 Organyà Basin limestones, end-member modelling
 258–259, 260
 Oriskany Formation, fluid migration 4, 148
 orogenesis
 and diagenesis 123
 fluid migration 2–6
 and remagnetization 2, 32–33
 Osmington Mills
 oil sands 190–191
 magnetic characterization 193–197
 Ouachita Orogeny 32
 Ouachita Orogeny thrust front 90–91
 and fluid migration 2, 4,
 89, 92, 103–104

 palaeoquifers, Basin and Range area 148
 palaeogeography, and remagnetization 55
 palaeomagnetism
 Alamo Breccia 151, 152–157
 Barnett Shale 89–104
 Canadian Cordillera 126–127
 carbonate rocks 229
 Williston Basin carbonates 114–120
 palaeopoles
 Barnett Shale 92, 94, 97, 100, 102, 103
 Cabo Magmatic Province 59, 60
 Carapacha Basin 71
 Central Alkaline Magmatic Province 59, 60
 Itajaí Basin 56, 75
 Laurentia 24, 37, 41
 Mt Kidd 130, 136
 North America 153, 154, 155, 159
 Paraná Magmatic Province 59
 and remagnetization age 37–38
 South America 56–59, 60
 palaeotemperature 253

- Palaeozoic
 remagnetized carbonates 230–247
see also Late Palaeozoic remagnetization event
- Pangea, palaeoreconstruction 56–58, **59**
- Paraguay Belt
 clay mineral transformation 63–64
 palaeopoles 61–62
- Paraná Magmatic Province, palaeopoles 59
- Pennsylvania salient, folding 31, 32
- Perimbó Shear Zone 79
- Permian, South America
 APWPs 56–58, 57
 remagnetization 56, 66–67, 71–72, 74, 79
- piezoremanent magnetization 11–13
- pigment, hematite 25
- plate tectonics, and remagnetization 55
- Playa Hermosa pole 56
- Ponón Trehué Formation, San Rafaelic remagnetization 66
- principal component analysis 25
- Purcell limestone 271, 272
 NRM measurement 272
- pyrite
 Araras Group 63
 Barnett Shale 96, 100, 104
 Canadian Cordillera 132, 140
 New York remagnetized carbonates 36, 37
- pyritization 63
- pyrrhotite
 Alamo Breccia 156, **157**, 158–160
 Alcaparrosa Formation 67
 Araras Group 63
 Canadian Cordillera 132, 134, 140
 CRM 138–139
 formation 166
 in claystone burial 181, 183–184
 sulphate reduction 7, 13
 Himalaya TSS 13, 163–177
 history of research 164–166
 remanence mechanism and age 167–170
 Marcellus Shale 275, 276–280
 New York remagnetized carbonates 36, 37
 occurrence 166
 remagnetization 13, 46, 48
 remagnetized Palaeozoic carbonates 234–235
 Saltarín 1A well 206–207, 208, 209, 212–214
- quartz, shocked, Alamo Breccia 146
- Reagan Sandstone, fluid migration 4, 5, 148
- red beds 11, 14, 23, 24–28
- Red River carbonates 108–109, 110
 magnetic mineralogy 110–111
 palaeomagnetism 109, 114–117
 (re)magnetization 117–120
 rock magnetism 109–114
- remagnetization 1
 Alamo Breccia 145–160
 burial 8–11
 claystones 181–186
 carbonate rock 229–247
 and clay diagenesis 8–9, 245
 definition 24
 end-member modelling 254–256
 false positive indicators 244–245
 history of concept 23–49
 Creer's hypothesis 23–24
 Late Palaeozoic event 2, 230, 253
 Laurentia **39–40**, 41
 mechanisms 1–2
 burial 8–11
 multiple, Canadian Cordillera 123–141
 and organic maturation 9–11
 orogenic fluids 2–6
 and palaeogeographic reconstruction 55
 pyrrhotite, Himalaya 13, 163–177
 recognition 253–254
 end-member modelling 254–256
 rock magnetic characterization 13–14
 South America 55–56, 75, 77–80
 Cambrian 60–66
 Gondwanides Fold Belt 67–73
 Itajaí Basin 75, 76
 Late Palaeozoic 66–75
 Río de la Plata Craton 73, 74–75
 San Rafaelic 56, 66–67
 syn-tectonic 73
 syntilting 11–13
 volcanic intrusion 67, 73, 79
 weathering fluids 7
- remnant magnetization
 anhysteretic (ARM) 109, 111–114,
 171, 230, 241
 Araras Group 60–64
 characteristic (ChRM)
 Alamo Breccia 158–159
 Barnett Shale 94, 95, 96, **97**, 99–102
 Marcellus Shale 273, 274, 276, 279
 Mississippian carbonates 126, 127, 129
 remagnetized carbonates 230, 231
 TSS **168–169**
 chemical (CRM) 1–2, 145
 Alamo Breccia 159–160
 Barnett Shale 4, 100, 103–104
 Canadian Cordillera
 burial temperature 123, 133, 134
 magnetite 136–138
 pyrrhotite 138–139
 claystone burial 8–9, 11, 182, 183–186
 and fluid migration 2–6, 14, 148–149
 Marcellus Shale 279, 280
 organic maturation 9–11
 and orogenic fluids 2–6
 South America 78–80
 syntilting 4, 11–13, 14
 TSS 167, 170
 Williston Basin carbonates 117, 120
- delayed acquisition 41–45
- depositional (DRM) hematite 25, 26
- isothermal (IRM) 254
 acquisition curves
 end-member modelling 13, 254–256
 Bey Dağları 261–263
 Organya Basin 258–259, 260
 southern Turkey 259–266
 Taurides 263–266
 Golfo San Jorge Basin 218, 221
 input 257
 Saltarín 1A well 203, 204, 206–209, 210

- Alamo Breccia 149–150
 Barnett Shale 93
 Canadian Cordillera 126, 127, 128, **129**
 Marcellus Shale 273–274
 TSS 173
 Williston Basin 109–110, 111–114, 115
- natural (NRM) 254
 Barnett Shale 92, 94, 95
 Canadian Cordillera 125
 and magnetostratigraphy 181
 Marcellus Shale 272, 274
 Mississippian carbonates 126, 127
 Williston Basin carbonates 111–114
- partial anhysteretic (pARM), Williston Basin 109, 111–114
- partial thermoremanent (pTRM) 46, 47, 48–49
- post-depositional (PDRM) 43
- saturated isothermal (SIRM) 109–110, 111–114, 115
- Tethyan Sedimentary Series, pyrrhotite 167–170
- thermoremanent (TRM)
 pyrrhotite 13
 TSS 167, 170
- thermoviscous (TVRM)
 Canadian Cordillera 123, 133
 Cenozoic 280
 claystone burial 182, 183–184
 remagnetized carbonates 13, 15, 34–35, 230
 Williston Basin carbonates 117
- viscous (VRM)
 Barnett Shale 94, 96
 Marcellus Shale 274
 remagnetized carbonates 230
see also piezoremanent magnetization
- Río Curacó Formation 70, 71, 79
 Río de la Plata Craton 73–75
 Rocha Formation 74
 Rosales horizon 73
- rotation
 Fort Worth Basin 101–102
 Helderberg Group 11
 Himalaya 173–177
 Isparta Angle 261, 263
- Rundle Group 124–125
- Salitre Formation 64, 78
 palaeopoles **58**
 rock magnetism 64
- Saltarín 1A well 8, 199–214, 200
 diagenesis, hydrocarbon related 200, 211–214
 direct signal analysis 200, 203
 hydrocarbons 200, 210–211
 and diagenesis 200, 211–214
 IRM acquisition curves 203, 204, 206–209, 210
 lithology 201–202
 rock magnetic properties 8, 202–207
- San Carlos Member 72, 73, 79
- San Juan Formation
 rock magnetism 66–67
 San Rafaelic remagnetization 66–67, 79
- San Rafaelic remagnetization 56, 66–67, 78, 79
- San Roberto Formation 70, 71, 79
- São Francisco Basin, fluid migration 65–66
- Selinsgrove Member 271
- Sevier Orogeny 32, 146, 148
- Seydişehir, end-member modelling 263–266
 shale 89, 271
see also Barnett Shale; Marcellus Shale
 siderite, Wessex Basin oil sands 194–195
- Sierra Grande Formation, syn-tectonic remagnetization 72, 73, 79
- Sierras Australes Fold, remagnetization 68–69, 78
 skewedness 257
- smectite, illitization 8–9, 11, 103, 182, 245
- Sonoma Orogeny 146, 148
- Souris River Formation 109, 110
 palaeomagnetism 109, 115–117
 (re)magnetization 117–120
 rock magnetism 111–114
- South America
 APWPs 56–59, **60**
 remagnetization 55–56, 60–75
 tectonic events 55–56
- Southern Oklahoma Aulacogen 90
- specularite 25
- sphalerite
 Barnett Shale 96, 100
 Canadian Cordillera 132, 140
- Spiti-Losar-Sarchu, pyrrhotite remagnetization 165
- squeegee hypothesis 33
- strain, as remagnetization mechanism 11, 123
- stress, as remagnetization mechanism 12, 123
- strontium isotope analysis
 Alamo Breccia 150–151, 158, 159, 160
 Barnett Shale 103
 Canadian Cordillera 132, 136, 139, 140
- sulphate reduction
 bacterial
 claystone burial 181, 183
 Mississippian carbonates 138–139
 thermochemical
 Mississippian carbonates 4, 125, 138–139
 pyrrhotite 4, 7
- sulphates, Barnett Shale 96, 100, 103–104
- sulphides, Barnett Shale 96, 100, 103–104
- Superior Boundary Zone (SBZ) 6, 108, 119, 120
- Taconnic orogeny 32
- Taurides, end-member modelling 262, 263–266
- tectono-metamorphism, and pyrrhotite remagnetization, Himalaya 173–176
- temperature, burial, Canadian Cordillera 123, 133–134
- Tethyan Sedimentary Series (TSS)
 metamorphism 170, 173–176
 pyrrhotite
 formation 166
 remagnetization 163–177
 remanence evidence 170–173
 remanence mechanism and age 167–170
- Thakkola area, pyrrhotite remagnetization 164
- thermopalaeomagnetism 48–49
- Tibet, pyrrhotite remagnetization 165–166
- tilt testing 11
 Alamo Breccia 149, 152, 153, 155
 Canadian Cordillera remagnetization 125, 129–130, **131**, 133, 134–136, 139
- tilting
 Andean 66
 and magnetization 4, 11–13, 14

- titanomagnetite 222–223, 232
 Tonoloway Limestone, tilt tests 11
 Trenton Limestone
 mineralogy 234
 remagnetization 28–29
 rock magnetism 231, 239, 240
 Tunas Formation 68–69
 Turkey, southern, end-member modelling 259–266
- Union Springs Formation 271, 272
 NRM measurement 272
 unmixing, bilinear 255–256
 Urre-Lauquen Member 71
- Valley and Ridge Province 4, 271, 272
 see also Marcellus Shale
 veins
 Canadian Cordillera 139
 contact testing 2, 3, 156–157
 Hancock Summit 147, 148, 156–157
 Verwey transition
 Marcellus Shale 274, 279
 Mississippian carbonates 127, 130
 remagnetized Palaeozoic carbonates 234
 Viola Limestone 91
 fluid migration 3, 5, 148–149
- Vocontian trough, claystone burial 8,
 185–186
 volcanism, and remagnetization
 South America 67, 73, 79
 Williston Basin 119–120
- Wealden Group, oil sands 190–191
 weathering, remagnetization 7
 Wessex Basin, oil sands 8,
 190–197
 Western Canada Basin,
 dolomitization 6
 Williston Basin 108
 carbonates 107–120
 demagnetization 109, 115, 116
 palaeomagnetism 114–120
 Red River carbonates 108–109
 remagnetization 6, 117–120
 rock magnetism 111–114
 geological framework 107–108
 Winnipegosis Formation 109, 110
 palaeomagnetism 109, 115–117
 (re)magnetization 117–120
 rock magnetism 111–114
- Yerbal Formation 74, 78