

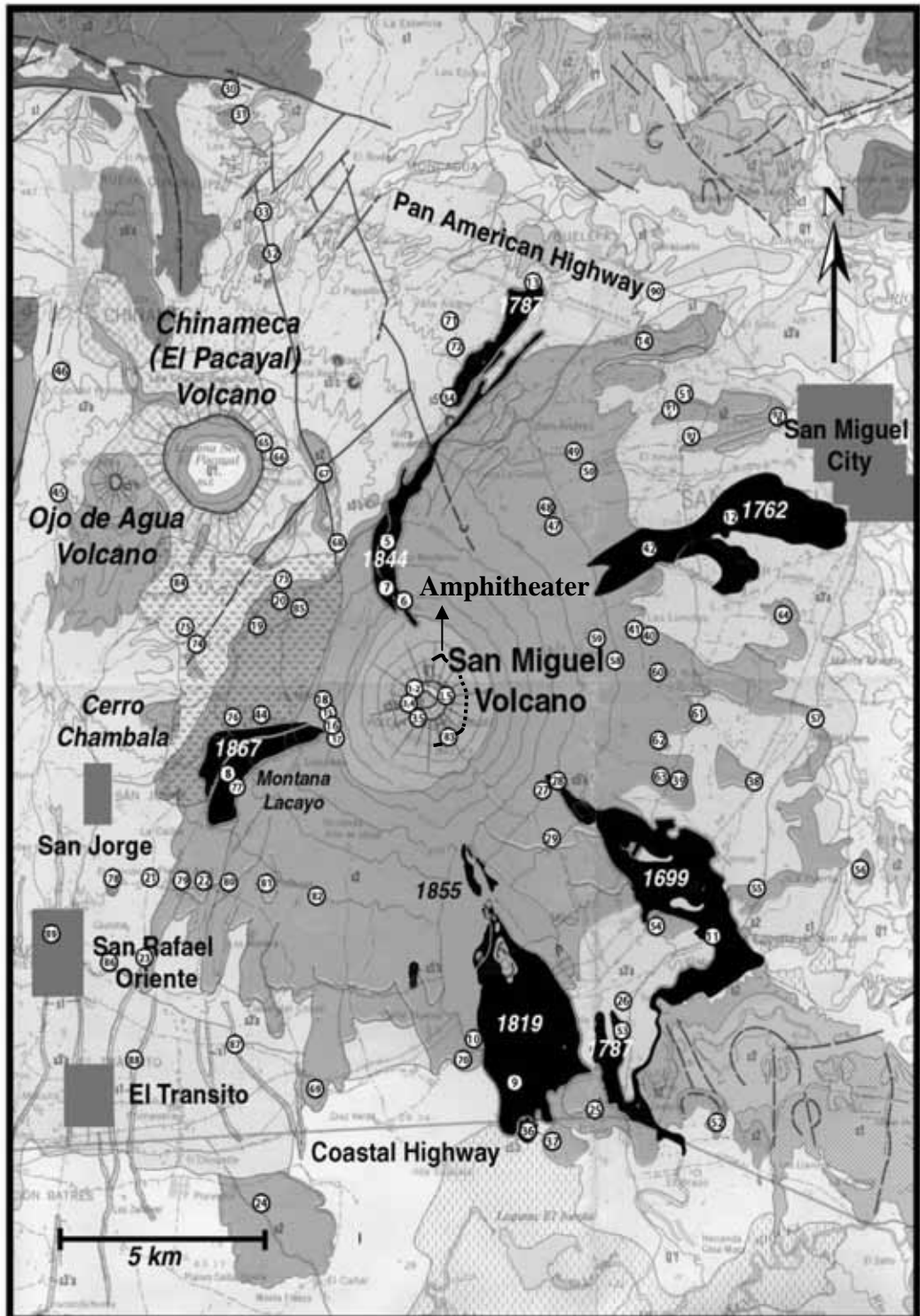
13. Anexos

- Anexo 1: Ficha de datos generales del Volcán de San Miguel
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- Anexo 2: Mapa geológico y vulcanológico
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- Anexo 3: Direcciones preferenciales de Vientos para elaboración de escenarios de amenaza por caída de cenizas.

Anexo 1: Datos generales

| INFORMACIÓN GENERAL ACERCA DEL VOLCAN SAN MIGUEL | |
|--|---|
| Ubicación | Longitud:579000 W Latitud: 257000 E |
| Tipo de volcán | Estrato volcán |
| Elevación de la cima | 2,130 msnm (6,986 pies) |
| Ultima actividad magmática | Diciembre 1976- febrero 1977 |
| Ultima erupción freática | 16 Febrero 2002 |
| Status del volcán | Histórico |
| VEI (Volcano Explosivity Index)) | 1 -2 :[1 es pequeño; 2 es moderado] |
| Número de erupciones moderadas (VEI = 2) desde 1699 al presente (2004) | ~14 |
| Tipo de erupción | Estromboliana |
| Tipo de roca | Basaltos- basaltos – andesíticos |
| Volumen del volcán | 58 km ³ [Carr et al., in press,2003] |

Anexo 2: Mapa geológico de depósitos volcánicos
(basado en Wiesemann (1975) y Chesner et al. (2003))



Anexo 3: Análisis de la dirección preferencial de los vientos por estaciones

| San Miguel Winds 1997-2002 | | | | | | |
|-----------------------------------|---------------|-------------------|-------------------|----------------|---------|--|
| January | | | | | | |
| Level | Elevation (m) | U-component (m/s) | V-component (m/s) | Velocity (m/s) | Azimuth | |
| 1 | 107 | -3.79 | -2.94 | 4.8 | 52 | |
| 2 | 793 | -6.88 | -3.97 | 7.9 | 60 | |
| 3 | 1523 | -7.74 | -3.10 | 8.3 | 68 | |
| 4 | 3153 | -5.86 | -0.56 | 5.9 | 85 | |
| 5 | 5867 | -1.09 | 0.87 | 1.4 | 129 | |
| 6 | 7579 | 3.31 | 1.22 | 3.5 | 250 | |
| 7 | 9669 | 8.61 | 4.15 | 9.6 | 244 | |
| 8 | 10917 | 10.76 | 6.22 | 12.4 | 240 | |
| 9 | 12417 | 12.46 | 7.38 | 14.5 | 239 | |
| 10 | 14217 | 11.79 | 5.73 | 13.1 | 244 | |
| 11 | 16550 | 3.12 | 2.25 | 3.8 | 234 | |
| 12 | 20533 | -2.75 | 0.23 | 2.8 | 95 | |
| 13 | 26275 | -4.10 | 0.23 | 4.1 | 93 | |
| February | | | | | | |
| Level | Elevation (m) | U-component (m/s) | V-component (m/s) | Velocity (m/s) | Azimuth | |
| 1 | 105 | -3.47 | -1.99 | 4.0 | 60 | |
| 2 | 791 | -6.61 | -3.12 | 7.3 | 65 | |
| 3 | 1522 | -7.09 | -2.62 | 7.6 | 70 | |
| 4 | 3151 | -5.00 | -0.57 | 5.0 | 84 | |
| 5 | 5868 | -1.78 | 0.36 | 1.8 | 101 | |
| 6 | 7583 | 2.18 | 0.99 | 2.4 | 246 | |
| 7 | 9672 | 7.85 | 4.43 | 9.0 | 241 | |
| 8 | 10917 | 10.26 | 6.65 | 12.2 | 237 | |
| 9 | 12408 | 12.63 | 7.82 | 14.9 | 238 | |
| 10 | 14200 | 12.52 | 6.42 | 14.1 | 243 | |
| 11 | 16567 | 4.52 | 2.50 | 5.2 | 241 | |
| 12 | 20567 | -1.84 | 0.29 | 1.9 | 99 | |
| 13 | 26283 | -1.83 | 0.62 | 1.9 | 109 | |
| March | | | | | | |
| Level | Elevation (m) | U-component (m/s) | V-component (m/s) | Velocity (m/s) | Azimuth | |
| 1 | 98 | -2.49 | -1.07 | 2.7 | 67 | |
| 2 | 785 | -5.54 | -1.82 | 5.8 | 72 | |
| 3 | 1517 | -6.01 | -1.86 | 6.3 | 73 | |
| 4 | 3150 | -3.95 | -1.22 | 4.1 | 73 | |
| 5 | 5871 | -1.77 | -0.40 | 1.8 | 77 | |

| | | | | | |
|----|-------|-------|-------|------|-----|
| 6 | 7588 | 2.22 | -0.46 | 2.3 | 282 |
| 7 | 9682 | 8.73 | 1.21 | 8.8 | 262 |
| 8 | 10925 | 11.04 | 4.35 | 11.9 | 249 |
| 9 | 12417 | 12.19 | 6.47 | 13.8 | 242 |
| 10 | 14217 | 11.42 | 4.26 | 12.2 | 250 |
| 11 | 16592 | 3.00 | 1.36 | 3.3 | 246 |
| 12 | 20567 | -1.20 | 0.46 | 1.3 | 111 |
| 13 | 26308 | -4.41 | 0.11 | 4.4 | 91 |

April

| Level | Elevation (m) | U-component (m/s) | V-component (m/s) | Velocity (m/s) | Azimuth |
|-------|---------------|-------------------|-------------------|----------------|---------|
| 1 | 96 | -1.48 | -0.26 | 1.5 | 80 |
| 2 | 785 | -4.41 | -1.11 | 4.5 | 76 |
| 3 | 1519 | -5.14 | -1.66 | 5.4 | 72 |
| 4 | 3155 | -4.81 | -1.65 | 5.1 | 71 |
| 5 | 5878 | -3.51 | -0.23 | 3.5 | 86 |
| 6 | 7598 | -1.62 | -1.07 | 1.9 | 57 |
| 7 | 9698 | 3.24 | -0.05 | 3.2 | 271 |
| 8 | 10925 | 5.90 | 2.02 | 6.2 | 251 |
| 9 | 12417 | 7.34 | 4.42 | 8.6 | 239 |
| 10 | 14217 | 6.53 | 3.49 | 7.4 | 242 |
| 11 | 16608 | -0.05 | 0.66 | 0.7 | 176 |
| 12 | 20592 | -2.83 | 0.09 | 2.8 | 92 |
| 13 | 26392 | -7.41 | 0.27 | 7.4 | 92 |

May

| Level | Elevation (m) | U-component (m/s) | V-component (m/s) | Velocity (m/s) | Azimuth |
|-------|---------------|-------------------|-------------------|----------------|---------|
| 1 | 92 | -1.49 | -0.28 | 1.5 | 79 |
| 2 | 781 | -3.68 | -0.66 | 3.7 | 80 |
| 3 | 1518 | -4.68 | -0.65 | 4.7 | 82 |
| 4 | 3157 | -4.22 | -0.55 | 4.3 | 83 |
| 5 | 5881 | -2.39 | 0.68 | 2.5 | 106 |
| 6 | 7599 | -1.32 | 0.57 | 1.4 | 113 |
| 7 | 9703 | 1.57 | 1.00 | 1.9 | 238 |
| 8 | 10983 | 3.54 | 1.77 | 4.0 | 243 |
| 9 | 12442 | 5.26 | 2.50 | 5.8 | 245 |
| 10 | 14242 | 5.93 | 1.39 | 6.1 | 257 |
| 11 | 16608 | 0.28 | -0.88 | 0.9 | 342 |
| 12 | 20625 | -5.85 | -0.08 | 5.8 | 89 |
| 13 | 26417 | -13.20 | 0.46 | 13.2 | 92 |

June

| Level | Elevation (m) | U-component (m/s) | V-component (m/s) | Velocity (m/s) | Azimuth |
|-------|---------------|-------------------|-------------------|----------------|---------|
| 1 | 95 | -1.68 | -0.52 | 1.8 | 73 |
| 2 | 784 | -4.02 | -0.91 | 4.1 | 77 |
| 3 | 1518 | -5.78 | -0.29 | 5.8 | 87 |
| 4 | 3158 | -5.97 | 0.95 | 6.0 | 99 |

| | | | | | |
|----|-------|--------|-------|------|-----|
| 5 | 5877 | -4.94 | 1.16 | 5.1 | 103 |
| 6 | 7595 | -3.85 | 0.79 | 3.9 | 102 |
| 7 | 9698 | -2.91 | -0.12 | 2.9 | 88 |
| 8 | 10975 | -2.36 | -0.90 | 2.5 | 69 |
| 9 | 12433 | -1.78 | -1.65 | 2.4 | 47 |
| 10 | 14233 | -1.89 | -2.68 | 3.3 | 35 |
| 11 | 16600 | -4.45 | -2.59 | 5.1 | 60 |
| 12 | 20692 | -10.82 | 0.10 | 10.8 | 91 |
| 13 | 26475 | -18.34 | 0.25 | 18.3 | 91 |

July

| Level | Elevation (m) | U-component (m/s) | V-component (m/s) | Velocity (m/s) | Azimuth |
|-------|---------------|-------------------|-------------------|----------------|---------|
| 1 | 100 | -3.07 | -1.51 | 3.4 | 64 |
| 2 | 789 | -6.40 | -2.32 | 6.8 | 70 |
| 3 | 1522 | -8.71 | -1.58 | 8.9 | 80 |
| 4 | 3161 | -8.78 | 0.37 | 8.8 | 92 |
| 5 | 5877 | -6.72 | 0.60 | 6.7 | 95 |
| 6 | 7589 | -4.61 | 0.29 | 4.6 | 94 |
| 7 | 9690 | -2.69 | -0.22 | 2.7 | 85 |
| 8 | 10958 | -1.91 | -0.67 | 2.0 | 71 |
| 9 | 12417 | -0.97 | -0.90 | 1.3 | 47 |
| 10 | 14208 | -1.41 | -1.13 | 1.8 | 51 |
| 11 | 16583 | -5.73 | -1.16 | 5.8 | 79 |
| 12 | 20708 | -14.11 | -0.15 | 14.1 | 89 |
| 13 | 26517 | -21.75 | 0.42 | 21.8 | 91 |

August

| Level | Elevation (m) | U-component (m/s) | V-component (m/s) | Velocity (m/s) | Azimuth |
|-------|---------------|-------------------|-------------------|----------------|---------|
| 1 | 96 | -2.47 | -1.12 | 2.7 | 66 |
| 2 | 786 | -5.67 | -1.95 | 6.0 | 71 |
| 3 | 1520 | -8.24 | -1.59 | 8.4 | 79 |
| 4 | 3160 | -8.63 | 0.38 | 8.6 | 93 |
| 5 | 5876 | -7.03 | 0.63 | 7.1 | 95 |
| 6 | 7591 | -5.27 | 0.21 | 5.3 | 92 |
| 7 | 9695 | -3.90 | -0.67 | 4.0 | 80 |
| 8 | 10983 | -3.37 | -1.17 | 3.6 | 71 |
| 9 | 12425 | -2.87 | -1.37 | 3.2 | 64 |
| 10 | 14217 | -4.21 | -1.21 | 4.4 | 74 |
| 11 | 16592 | -7.64 | -1.00 | 7.7 | 83 |
| 12 | 20708 | -14.66 | -0.01 | 14.7 | 90 |
| 13 | 26483 | -21.68 | 0.45 | 21.7 | 91 |

September

| Level | Elevation (m) | U-component (m/s) | V-component (m/s) | Velocity (m/s) | Azimuth |
|-------|---------------|-------------------|-------------------|----------------|---------|
| 1 | 90 | 0.54 | 0.51 | 0.7 | 227 |

| | | | | | |
|----|-------|--------|-------|------|-----|
| 2 | 778 | -0.26 | 0.46 | 0.5 | 151 |
| 3 | 1511 | -1.38 | 0.20 | 1.4 | 98 |
| 4 | 3150 | -2.81 | 0.52 | 2.9 | 100 |
| 5 | 5866 | -3.94 | 0.64 | 4.0 | 99 |
| 6 | 7585 | -4.38 | -0.16 | 4.4 | 88 |
| 7 | 9688 | -4.87 | -1.65 | 5.1 | 71 |
| 8 | 10950 | -5.29 | -2.76 | 6.0 | 62 |
| 9 | 12433 | -6.06 | -3.77 | 7.1 | 58 |
| 10 | 14225 | -8.15 | -4.86 | 9.5 | 59 |
| 11 | 16600 | -8.83 | -3.11 | 9.4 | 71 |
| 12 | 20683 | -12.28 | -0.20 | 12.3 | 89 |
| 13 | 26450 | -18.85 | 0.59 | 18.9 | 92 |

October

| Level | Elevation (m) | U-component (m/s) | V-component (m/s) | Velocity (m/s) | Azimuth |
|-------|---------------|-------------------|-------------------|----------------|---------|
| 1 | 90 | -0.82 | -1.42 | 1.6 | 30 |
| 2 | 778 | -2.57 | -2.11 | 3.3 | 51 |
| 3 | 1511 | -4.09 | -1.74 | 4.4 | 67 |
| 4 | 3149 | -4.16 | -0.45 | 4.2 | 84 |
| 5 | 5868 | -4.19 | -0.38 | 4.2 | 85 |
| 6 | 7587 | -4.03 | -0.69 | 4.1 | 80 |
| 7 | 9693 | -3.55 | -0.85 | 3.6 | 76 |
| 8 | 10975 | -3.95 | -0.61 | 4.0 | 81 |
| 9 | 12433 | -4.70 | -0.46 | 4.7 | 84 |
| 10 | 14225 | -5.65 | -0.93 | 5.7 | 81 |
| 11 | 16583 | -4.30 | -1.77 | 4.7 | 68 |
| 12 | 20642 | -8.17 | 0.04 | 8.2 | 90 |
| 13 | 26392 | -14.69 | 0.63 | 14.7 | 92 |

November

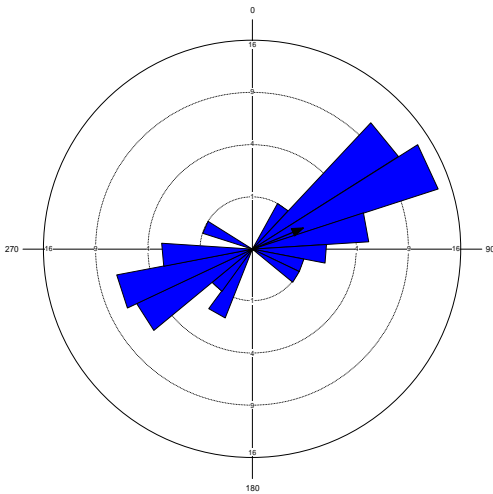
| Level | Elevation (m) | U-component (m/s) | V-component (m/s) | Velocity (m/s) | Azimuth |
|-------|---------------|-------------------|-------------------|----------------|---------|
| 1 | 96 | -2.01 | -2.74 | 3.4 | 36 |
| 2 | 783 | -4.48 | -3.87 | 5.9 | 49 |
| 3 | 1515 | -6.07 | -3.15 | 6.8 | 63 |
| 4 | 3150 | -5.46 | -1.02 | 5.6 | 79 |
| 5 | 5868 | -4.57 | 0.46 | 4.6 | 96 |
| 6 | 7588 | -3.32 | 0.72 | 3.4 | 102 |
| 7 | 9690 | -1.20 | 1.99 | 2.3 | 149 |
| 8 | 10975 | -0.42 | 3.51 | 3.5 | 173 |
| 9 | 12408 | -0.12 | 5.39 | 5.4 | 179 |
| 10 | 14208 | 0.31 | 5.44 | 5.5 | 183 |
| 11 | 16583 | -0.35 | 1.60 | 1.6 | 167 |
| 12 | 20583 | -5.20 | -0.24 | 5.2 | 87 |
| 13 | 26342 | -9.53 | 0.39 | 9.5 | 92 |

December

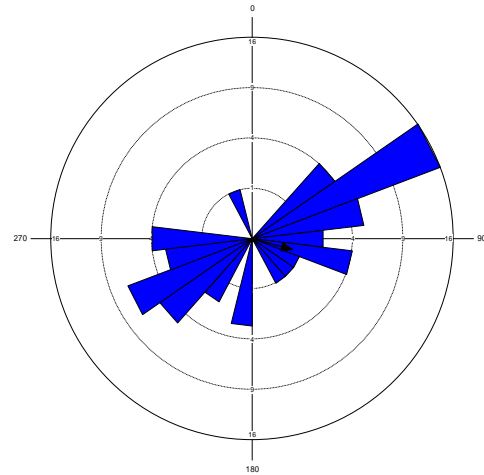
| Level | Elevation (m) | U-component (m/s) | V-component (m/s) | Velocity (m/s) | Azimuth |
|-------|---------------|-------------------|-------------------|----------------|---------|
|-------|---------------|-------------------|-------------------|----------------|---------|

| | | | | | |
|----|-------|-------|-------|-----|-----|
| 1 | 101 | -3.11 | -3.61 | 4.8 | 41 |
| 2 | 788 | -6.01 | -4.93 | 7.8 | 51 |
| 3 | 1518 | -7.28 | -3.77 | 8.2 | 63 |
| 4 | 3153 | -5.51 | -1.10 | 5.6 | 79 |
| 5 | 5872 | -2.84 | 0.80 | 2.9 | 106 |
| 6 | 7587 | -0.39 | 2.04 | 2.1 | 169 |
| 7 | 9683 | 2.33 | 4.51 | 5.1 | 207 |
| 8 | 10942 | 3.09 | 6.57 | 7.3 | 205 |
| 9 | 12425 | 3.46 | 8.62 | 9.3 | 202 |
| 10 | 14200 | 5.32 | 7.70 | 9.4 | 215 |
| 11 | 16567 | 2.62 | 3.99 | 4.8 | 213 |
| 12 | 20558 | -3.88 | 0.13 | 3.9 | 92 |
| 13 | 26275 | -5.22 | 0.63 | 5.3 | 97 |

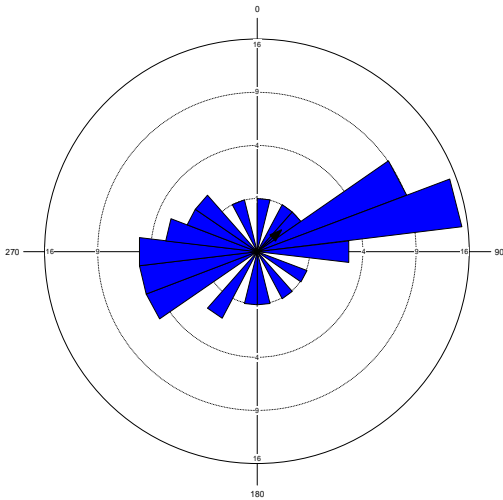
Enero



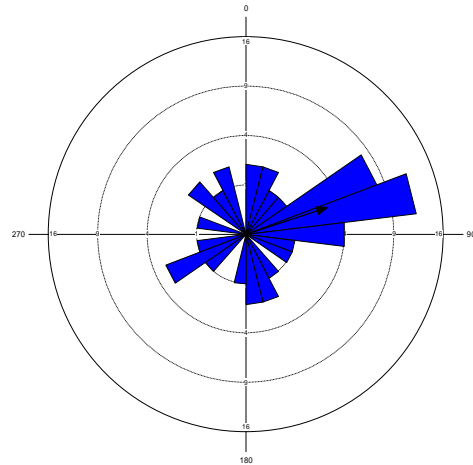
Febrero



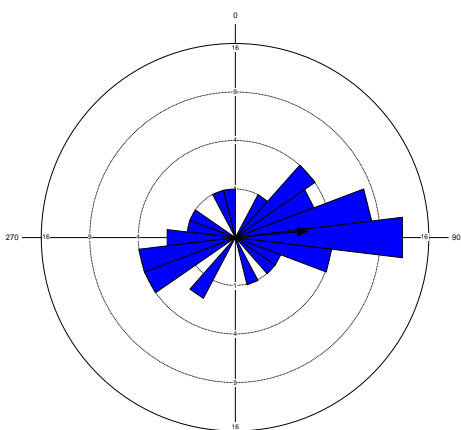
Mai 20



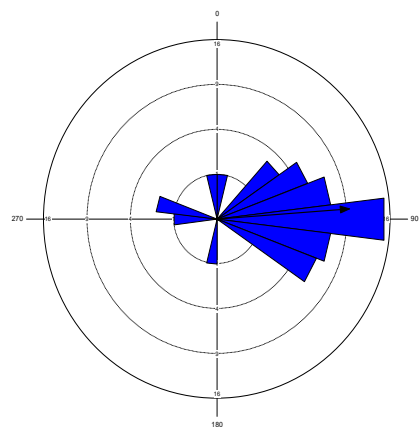
Abril



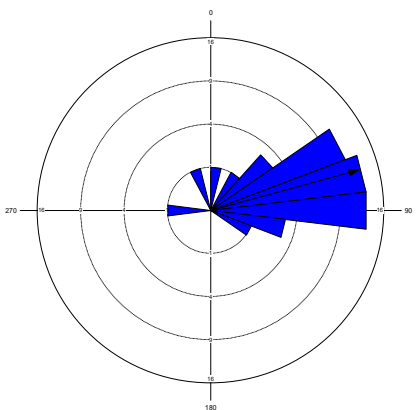
Mayo



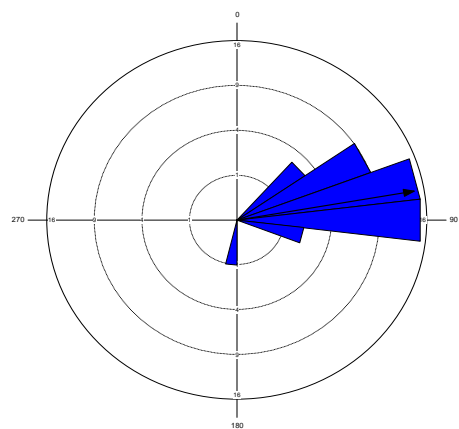
Junio



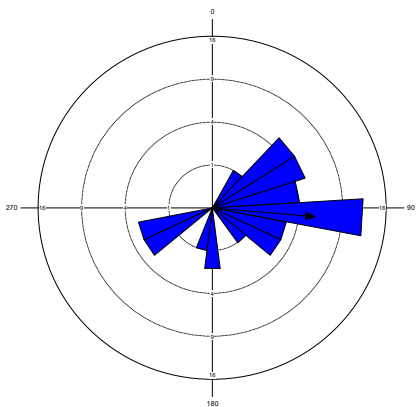
Julio



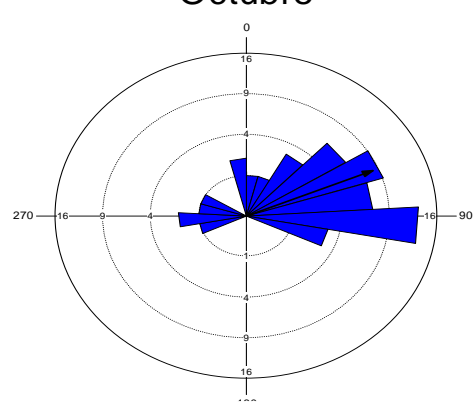
Agosto



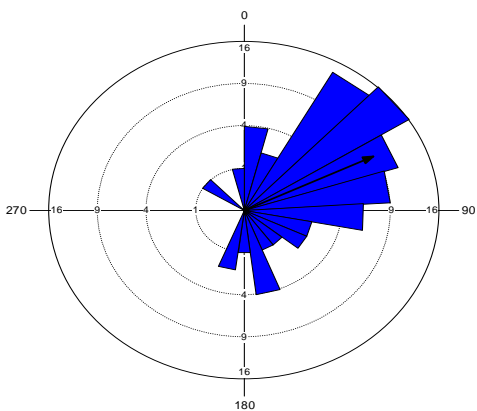
Septiembre



Octubre



Noviembre



Diciembre

