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Data Repository

Appendix A. Taxonomic List of species cited in text and figures.

Figure DR1. Paleogeographic-palinspastic sketch map of the study area during the lower Priabonian showing the location of the Varignano section. 1. Basinal emipelagic marls (“Ponte Pià Formation”), 2. Slope deposits (“Malcesine Limestone”), 3. Platform carbonates (“Nago Limestone”). Modified from Luciani (1989).

Table DR1. Sample with relative position, laboratory methods, occurrences and abundances of planktic foraminifera from the Varignano section.

Table DR2. Abundances of calcareous nannofossils from the Varignano section.

Table DR3. Larger foraminiferal DELETED 'd' occurrences from the Varignano section.

Table DR4. Average microprobe analyses of studied samples.

Table DR5. Age estimations of Planktic Foraminifera and larger Foraminifera biohorizons based on the GPTS of CK95 and Pälike et al. (2006).

Table DR6. Age estimations of calcareous nannofossil biohorizons based on the GPTS of CK95 and Pälike et al. (2006).

APPENDIX A. Taxonomic List of species cited in text and figures.

Planktic foraminifera

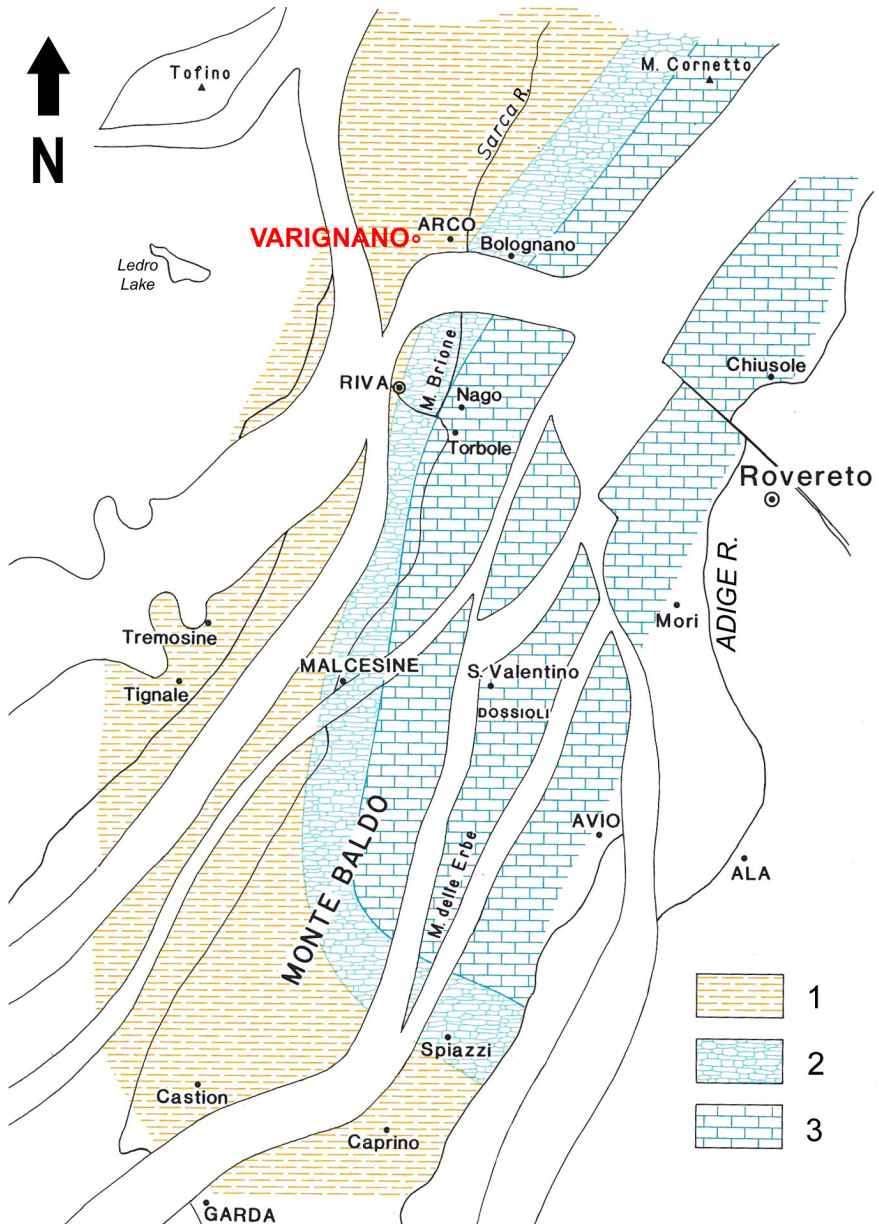
Acarinina bullbrooki (Bolli, 1957)
Acarinina collactea (Finlay, 1939)
Acarinina echinata (Bolli, 1957)
Acarinina medizzai (Toumarkine and Bolli, 1975)
Acarinina mcgowrani Wade and Pearson, 2006
Acarinina praetopilensis (Blow, 1979)
Acarinina primitiva (Finlay, 1947)
Acarinina rohri (Brönnimann and Bermúdez, 1953)
Acarinina topilensis (Cushman, 1925)
Globigerinatheka semiinvoluta (Cushman, 1925)
Guembelitriones nuttalli (Hamilton, 1953)
Morozovelloides crassatus (Keijzer, 1945)
Orbulinoides beckmanni (Saito, 1962)
Planorotalites capdevilensis (Cushman and Bermudez, 1949)
Turborotalia cerroazulensis (Cole, 1928)
Turborotalia cocoaensis (Cushman, 1928)
Turborotalia frontosa (Subbotina, 1953)
Turborotalia pomeroli (Toumarkine & Bolli 1970)
Turborotalia possagnoensis (Toumarkine and Bolli, 1970)

Calcareous nannofossil

Chiasmolithus Hay, Mohler and Wade (1966)
Chiasmolithus grandis (Bramlette and Riedel, 1954) Radomski (1968)
Chiasmolithus oamaruensis (Deflandre, 1954) Hay, Mohler and Wade (1966)
Chiasmolithus solitus (Bramlette and Sullivan, 1961) Locker (1968)
Chiasmolithus expansus (Bramlette and Sullivan, 1961) Gartner, 1970
Cribrocentrum Perch-Nielsen (1971)
Cribrocentrum erbae Fornaciari et al. (2010)
Cribrocentrum isabellae Catanzariti et al. in Fornaciari et al. (2010)
Cribrocentrum reticulatum (Gartner and Smith, 1967) Perch-Nielsen (1971)
Dictyococcites Black (1967)
Dictyococcites bisectus (Hay, Mohler and Wade, 1966) Bukry and Percival (1971)
Dictyococcites scrippsae Bukry and Percival (1971) = *D. hesslandii* Haq (1971)
Discoaster Tan Sin Hok (1927)
Isthmolithus Deflandre (1954)
Isthmolithus recurvus Deflandre (1954)
Reticulofenestra Hay et al. (1966)
Reticulofenestra umbilicus (Levin, 1965) Martini and Ritzkowski (1968)
Sphenolithus Deflandre in Grassé (1952)
Sphenolithus furcatolithoides Locker (1967)
Sphenolithus moriformis (Brönnimann and Stradner, 1960) Bramlette and Wilcoxon (1967)
Sphenolithus obtusus Bukry (1971)
Sphenolithus predistentus Bramlette and Wilcoxon (1967)
Sphenolithus spiniger Bukry (1971)
Sphenolithus sp.1. This form is a morphotype very similar to *S. obutus* but at crossed nicols differs from this one for the apical spine that does not show the typical median suture at 0° and the extinction of whole side of the nannofossil at 15° to 25°.

Larger foraminifera

- Assillina schwageri* (Silvestri, 1928)
Discocyclina discus (Rütimeyer, 1850) *adamsi* Samanta & Lahiri, 1985
Heterostegina reticulata Rütimeyer, 1850
Nummulites anomalus de la Harpe, 1877
Nummulites biedai Schaub, 1962
Nummulites cf. *chavannesi* de la Harpe, 1878
Nummulites dufrenoyi d'Archiac & Haime, 1853
Nummulites hormoensis Nuttall & Brighton, 1931
Nummulites hottingeri Schaub, 1981
Nummulites cf. *incrassatus* de la Harpe, 1883
Nummulites lyelli d'Archiac & Haime, 1853
Nummulites maximus d'Archiac, 1850
Nummulites millecaput Boubée, 1832
Nummulites ptukhiani Z.D. Kacharava, 1969
Nummulites cf. *pulchellus* Hantken in de la Harpe, 1883
Nummulites striatus (Bruguière, 1792)
Operculina ex gr. *gomezi* Colom & Bauzá, 1950
Orbitoclypeus varians (Kaufmann, 1867) *roberti* (Douvillé, 1922)
Silvestriella tetraedra (Gümbel, 1870)
Sphaerogypsina globula (Reuss, 1848)



Luciani et al. Table DR3. Larger foraminiferal **DELETE 'd'** docurrences from the Varignano section.

| Sample | Thickness (cm) | <i>Nummulites</i> spp. | <i>Nummulites anomalus</i> | <i>Nummulites cf. chavannesi</i> | <i>Nummulites dufrenoyi</i> | <i>Nummulites hottingeri</i> | <i>Nummulites cf. incrassatus</i> | <i>Nummulites cf. "ptukhiani"</i> | <i>Nummulites cf. pulchellus</i> | <i>Nummulites striatus</i> | <i>Nummulites variolarius</i> | <i>Heterostegina</i> sp. | <i>Assilina schwageri</i> | <i>Operculina ex gr. gomezi</i> | <i>Operculina bericensis</i> | <i>Pellatispira</i> sp. | <i>Orhtophragmine</i> | <i>Asterocyclina</i> sp. | <i>Discocyclina</i> sp. | <i>Discocyclina discus adamsi</i> | <i>Orbitoclypeus</i> sp. | <i>Orbitoclypeus varians roberti</i> | <i>Alveolina</i> sp. | <i>Asterigerina rotula</i> | <i>Fabiania</i> sp. | <i>Lenticulina</i> sp. | <i>Silvestriella tetraedra</i> | <i>Sphaerogypsina globula</i> |
|------------|----------------|------------------------|----------------------------|----------------------------------|-----------------------------|------------------------------|-----------------------------------|-----------------------------------|----------------------------------|----------------------------|-------------------------------|--------------------------|---------------------------|---------------------------------|------------------------------|-------------------------|-----------------------|--------------------------|-------------------------|-----------------------------------|--------------------------|--------------------------------------|----------------------|----------------------------|---------------------|------------------------|--------------------------------|-------------------------------|
| VAR 8 | 2837.0 | X | | | X | | | | | | X | ? | X | X | | X | X | X | | | | | X | | X | X | X | X |
| VAR 7bis a | 2269.0 | X | | | X | | | | | | | | | X | | | X | X | | | | | X | | X | | | |
| VAR 7ter | 2027.0 | | | | | | X | | | | X | | X | X | | | X | | | | | | X | | | | | |
| VAR 7 | 1848.5 | X | | | X | | | X | X | | | ? | | X | | X | X | X | | | | | X | X | X | | | X |
| VAR 6 | 1542.5 | X | | X | | | | | | | X | ? | X | X | | X | X | X | | | | | X | | X | | | X |
| VAR 5bis | 1117.5 | X | | | X | | | | | | | | X | X | | X | X | X | | | | | X | | X | | | |
| VAR 5 | 790.5 | X | | | | | | | | | | | X | | | X | X | X | | | | | | | X | | | X |
| VAR 4 | 572.0 | X | X | | X | | | | X | | X | ? | X | X | X | X | X | X | | | | | X | | X | | | X |
| VAR 3bis | 509.5 | X | | | X | | | | | | X | | X | X | | X | X | X | | | X | | X | | X | | | |
| VAR 3 | 402.0 | X | | | X | | X | | | | X | | | X | | X | X | X | | X | | | X | ? | X | | | X |
| VAR 2 | 332.5 | X | | | X | | | | | | X | ? | | X | | X | X | X | | | | | ? | X | | X | | X |
| VAR 1 | -7.5 | X | X | X | X | | X | | X | ? | X | | X | X | X | | X | X | | | | | X | | X | | | X |
| VAR 0 | -213.0 | X | | X | X | X | X | | X | X | X | | X | X | | | X | X | X | | | X | | X | | X | | X |

Luciani et al. Table DR4

Table DR4 - Average microprobe analyses of studied samples

| Bed | VARIGNANO SECTION | | | | | | | | | | ALANO SECTION | | | | | | | | | |
|--------------------------------|-------------------|------------|-------|----------|--------|----------|-------|----------|--------|----------|---------------|----------|----------|----------|-----------|----------|---------|----------|------------|----------|
| | VL -4 | | VL -2 | | VL -1 | | VLOA | | VL +3 | | VL +4 | | MANTEGNA | | GIORGIONE | | TIZIANO | | TINTORETTO | |
| | wt.% | ± St. dev. | wt.% | St. dev. | wt.% | St. dev. | wt.% | St. dev. | wt.% | St. dev. | wt.% | St. dev. | wt.% | St. dev. | wt.% | St. dev. | wt.% | St. dev. | wt.% | St. dev. |
| <i>n° an.</i> | 48 | | 36 | | 32 | | 28 | | 56 | | 42 | | 21 | | 26 | | 37 | | 40 | |
| Na ₂ O | 4.99 | 0.80 | 4.19 | 0.97 | 5.25 | 1.27 | 5.25 | 0.82 | 4.54 | 1.09 | 4.58 | 0.91 | 4.44 | 0.58 | 5.93 | 0.69 | 4.35 | 0.92 | 5.42 | 0.48 |
| MgO | 0.02 | 0.02 | 0.07 | 0.30 | 0.02 | 0.03 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.03 | 0.01 | 0.01 | 0.01 | 0.02 | 0.02 | 0.01 | 0.01 |
| Al ₂ O ₃ | 27.64 | 1.37 | 29.05 | 1.64 | 28.24 | 2.06 | 27.43 | 1.33 | 29.16 | 1.67 | 29.72 | 1.39 | 29.17 | 0.88 | 26.71 | 1.08 | 28.73 | 2.85 | 28.68 | 0.71 |
| SiO ₂ | 55.04 | 2.09 | 53.12 | 2.44 | 55.25 | 3.06 | 55.52 | 1.88 | 53.71 | 2.56 | 53.72 | 2.12 | 53.71 | 1.47 | 56.95 | 1.61 | 53.95 | 4.08 | 55.28 | 1.26 |
| K ₂ O | 0.29 | 0.10 | 0.26 | 0.10 | 0.26 | 0.12 | 0.28 | 0.06 | 0.21 | 0.08 | 0.19 | 0.07 | 0.30 | 0.13 | 0.40 | 0.50 | 0.22 | 0.14 | 0.23 | 0.03 |
| CaO | 10.82 | 1.59 | 12.56 | 1.85 | 10.76 | 2.35 | 10.51 | 1.52 | 12.13 | 1.96 | 12.42 | 1.63 | 12.09 | 1.11 | 9.49 | 1.16 | 12.02 | 2.29 | 11.17 | 0.85 |
| TiO ₂ | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 | 0.02 | 0.01 | 0.01 |
| Mno | 0.02 | 0.02 | 0.01 | 0.01 | 0.01 | 0.02 | 0.02 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 | 0.02 | 0.01 | 0.02 | 0.01 | 0.01 |
| FeO | 0.25 | 0.05 | 0.41 | 0.29 | 0.20 | 0.05 | 0.23 | 0.03 | 0.24 | 0.04 | 0.23 | 0.05 | 0.34 | 0.04 | 0.17 | 0.05 | 0.26 | 0.10 | 0.20 | 0.03 |
| Total | 99.11 | 0.48 | 99.72 | 0.66 | 100.02 | 0.41 | 99.29 | 0.47 | 100.06 | 0.31 | 100.89 | 0.36 | 100.13 | 0.46 | 99.70 | 0.61 | 99.61 | 0.97 | 101.00 | 0.42 |

Luciani et al. Table DR6

Table DR6. Age estimations of calcareous nannofossil biohorizons based on the GPTS of CK95 and Pälike et al. (2006).

| Biohorizon | Varignano | | | | | | Alano | | | | | | ODP Site 1052 | | | | | |
|------------------------------------|---------------|----------------|-----------------------|---------------|-------------------------------|---------------|---------------|--------------|-----------------------|---------------|-------------------------------|---------------|---------------|-----------------------|---------------|-------------------------------|---------|--|
| | Thickness (m) | Sample | Position to chron top | Age (Ma) CK95 | Age (Ma) Pälike et al. (2006) | | Thickness (m) | Sample (COL) | Position to chron top | Age (Ma) CK95 | Age (Ma) Pälike et al. (2006) | | Depth (rmcd) | Position to chron top | Age (Ma) CK95 | Age (Ma) Pälike et al. (2001) | | |
| <i>I. recurvus</i> spike end | 34,820 | BRD58-BRD60 | / | / | 37,239 ±0,023 | 37,276 ±0,024 | 79,91 | 4785C-4805C | C17n.1n | 0,784 | 37,288 ±0,003 | 37,336 ±0,003 | 72,42 | C17n.1n | 0,795 | 37,298 ±0,009 | 37,122 | |
| <i>I. recurvus</i> spike beginning | 32,635 | BRD54-BRD55 | / | / | 37,340 ±0,008 | 37,380 ±0,009 | 78,11 | 4605C-4625C | C17n.1n | 0,853 | 37,347 ±0,003 | 37,395 ±0,003 | 81,29 | C17n.1r | 0,885 | 37,589 ±0,005 | 37,428 | |
| Tc <i>C. erbae</i> | 30,950 | BRD50-BRD52 | / | / | 37,417 ±0,023 | 37,460 ±0,024 | 75,01 | 4245C-4365C | C17n.1n | 0,972 | 37,449 ±0,019 | 37,496 ±0,020 | 76,27 | C17n.1n | 0,934 | 37,417 ±0,008 | 37,261 | |
| T <i>C. grandis</i> | 26,750 | BRD45-BRD46A | / | / | 37,610 ±0,011 | 37,660 ±0,012 | 66,47 | 3441C-3461C | C17n.2n | 0,492 | 37,724 ±0,003 | 37,780 ±0,003 | 84,71 | C17n.2n | 0,453 | 37,714 ±0,011 | 37,527 | |
| Bc <i>C. erbae</i> | 21,005 | BRD22-BRD23 | C17n.2r | 0,253 | 37,866 ±0,004 | 37,907 ±0,003 | 62,96 | 3039C-3061C | C17n.2n | 0,939 | 37,833 ±0,019 | 37,892 ±0,019 | 87,63 | C17n.2n | 0,891 | 37,821 ±0,005 | 37,624 | |
| Br <i>C. oamaruensis</i> | 19,775 | BRD17-BRD18 | C17n.2r | 0,818 | 37,907 ±0,004 | 37,947 ±0,003 | 62,85 | 3079C-3099C | C17n.2n | 0,953 | 37,837 ±0,003 | 37,895 ±0,003 | 86,50 | C17n.2n | 0,722 | 37,780 ±0,011 | 37,584 | |
| Tt <i>S. predistentus</i> | / | / | / | / | / | / | 50,85 | 1832C-1956C | C17r | 0,261 | 38,195 ±0,031 | 38,235 ±0,029 | 130,28 | C18n.2n | 0,068 | 39,665 ±0,019 | 39,506 | |
| T <i>S. obtusus</i> | 7,760 | BRD95-BRD96 | C17r | 0,856 | 38,353 ±0,003 | 38,378 ±0,003 | 49,59 | 1712C-1832C | C17r | 0,448 | 38,253 ±0,028 | 38,289 ±0,026 | 108,12 | C18n.1n | 0,021 | 38,449 ±0,017 | 38,229 | |
| T <i>C. solitus</i> | / | / | / | / | / | / | 44,73 | 1221C-1352C | C18n.1n | 0,057 | 38,490 ±0,037 | 38,511 ±0,036 | 106,76 | C17r | 0,910 | 38,398 ±0,009 | 38,187 | |
| Tc <i>C. grandis</i> | / | / | / | / | / | / | 36,18 | 372C-492C | C18n.1n | 0,484 | 38,971 ±0,033 | 38,984 ±0,033 | 110,62 | C18n.1n | 0,143 | 38,587 ±0,016 | 38,315 | |
| Tc <i>C. solitus</i> | / | / | / | / | / | / | 27,900 | 1054B-1165B | C18n.1n | 0,898 | 39,437 ±0,033 | 39,441 ±0,033 | 155,29 | C18r | / | 40,926 ±0,015 | / | |
| B <i>S. obtusus</i> | -1,030 | FBC-83-FGB-123 | C18n | / | 39,758 ±0,039 | 39,771 ±0,039 | 22,65 | 570B-590B | C18n.2n | 0,005 | 39,633 ±0,009 | 39,604 ±0,009 | 139,44 | C18n.2n | 0,994 | 40,127 ±0,008 | 39,827 | |
| T <i>H. spiniger</i> | / | / | / | / | / | / | 22,65 | 550B-610B | C18n.2n | 0,005 | 39,633 ±0,028 | 39,604 ±0,027 | 138,84 | C18n.2n | 0,934 | 40,097 ±0,008 | 39,804 | |
| Tc <i>H. spiniger</i> | -1,930 | RBD1-FGB-203 | / | / | 39,933 ±0,019 | 39,945 ±0,019 | 17,55 | 60B-80B | C18n.2n | 0,940 | 40,100 ±0,009 | 40,055 ±0,009 | 142,19 | C18r | / | 40,266 ±0,040 | >39,902 | |
| Bc <i>D. bisectus</i> | -3,805 | BDR68-BDR69 | / | / | 40,298 ±0,024 | 40,308 ±0,024 | 9,5 | 940-960 | C18r | / | 40,590 ±0,005 | 40,525 ±0,006 | 143,94 | C18r | / | 40,354 ±0,008 | / | |
| Bc <i>D. scrippsae</i> | / | / | / | / | / | / | 9,3 | 920-940 | C18r | / | 40,601 ±0,006 | 40,536 ±0,006 | 143,94 | C18r | / | 40,354 ±0,008 | / | |
| B <i>S. predistentus</i> | / | / | / | / | / | / | 6,3 | 600-660 | C18r | / | 40,780 ±0,018 | 40,708 ±0,017 | 143,94 | C18r | / | 40,354 ±0,008 | / | |
| T <i>S. furcatolithoides</i> | -4,850 | BDR72-RBD2 | / | / | 40,502 ±0,023 | 40,510 ±0,023 | 6,3 | 600-660 | C18r | / | 40,780 ±0,018 | 40,708 ±0,017 | 144,54 | C18r | / | 40,384 ±0,008 | / | |
| Bc ? <i>C. reticulatum</i> | / | / | / | / | / | / | 0,6 | / | / | / | 41,119 ±0,036 | 41,033 ±0,034 | 157,69 | C18r/C19n | / | / | / | |