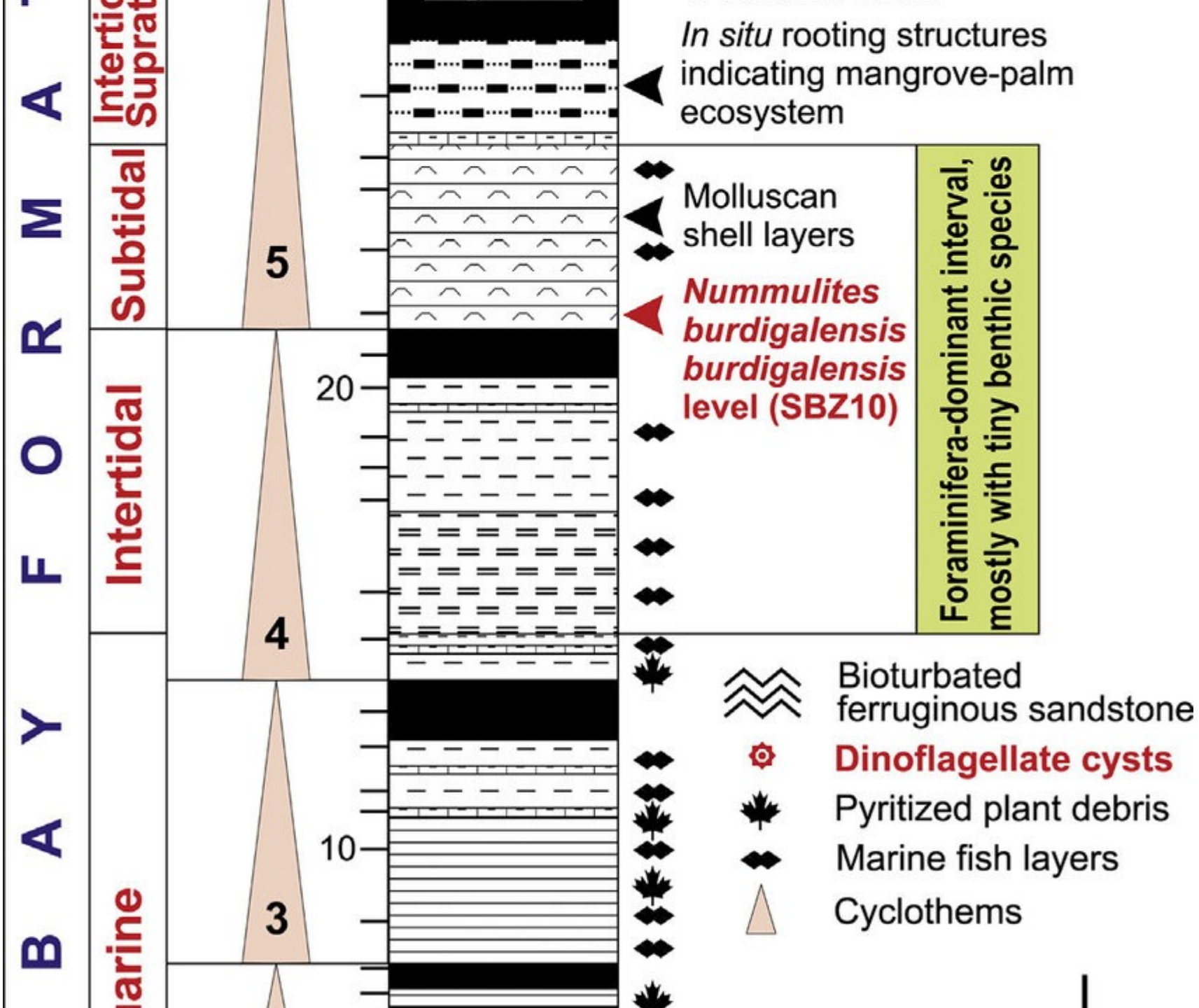
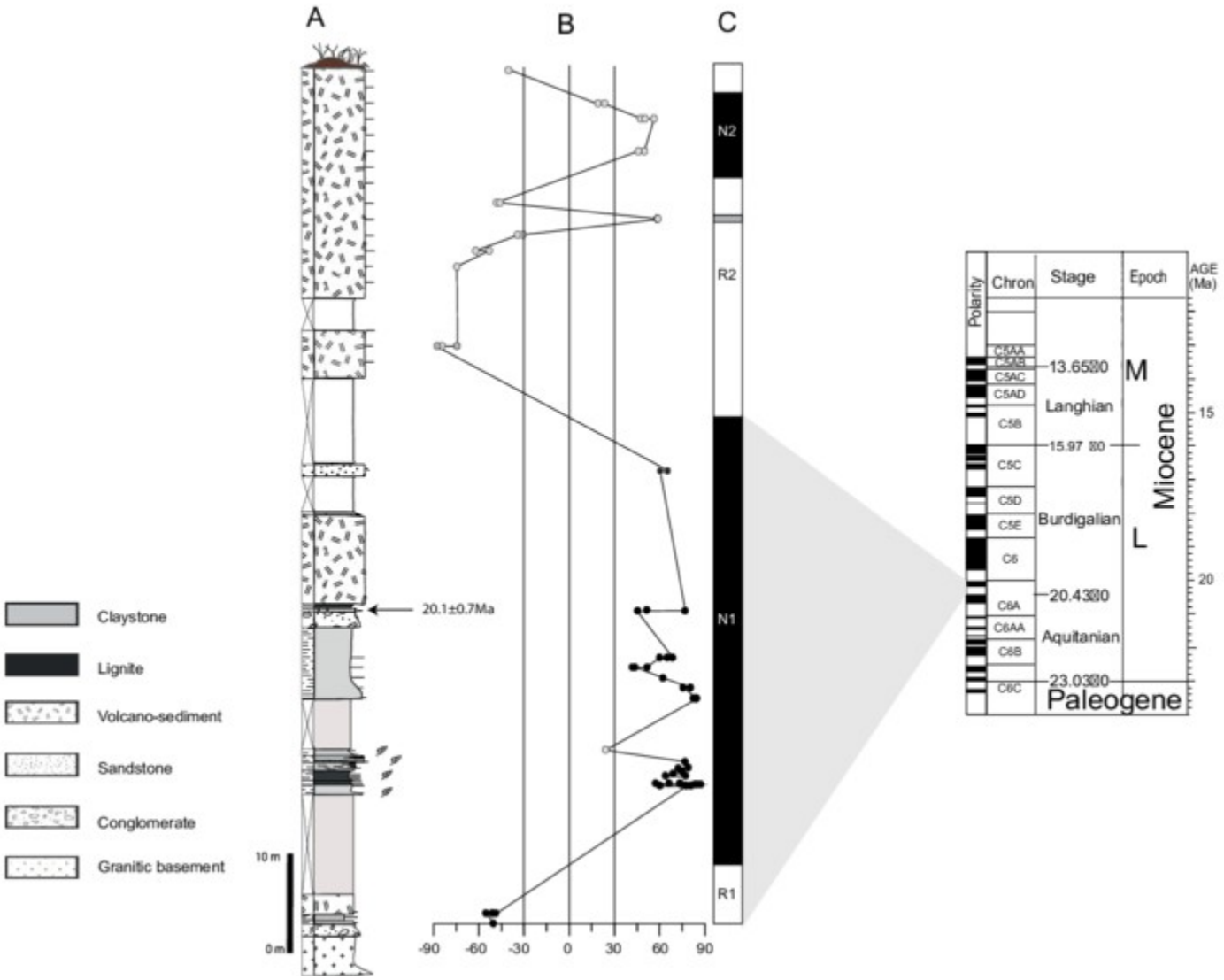
# NEVELI LIGNITE FIELD

# LITHO LOG

**Dr.A.Balukkarasu,**
**Associate Professor,**
**Department of Remote Sensing,**
**Bharathidasan University,**
**Thiruchirapalli-620 023**
**Mail id: gsibalu63@gmail.com**
**balukkarasu.a@bdu.ac.in**
**Mobile no.94430 67281**


BAY FORMA
Intertid
Suprat
Subtidal
Intertidal
arine
5
4
3
20
10
In situ rooting structures indicating mangrove-palm ecosystem
Molluscan shell layers
Nummulites burdigalensis burdigalensis level (SBZ10)
Foraminifera-dominant interval, mostly with tiny benthic species
Bioturbated ferruginous sandstone
Dinoflagellate cysts
Pyritized plant debris
Marine fish layers
Cyclothems


A
B
C
N2
R2
N1
R1
20.1±0.7Ma
Claystone
Lignite
Volcano-sediment
Sandstone
Conglomerate
Granitic basement
10 m
0 m
-90 -60 -30 0 30 60 90
Polarity
Chron
Stage
Epoch
AGE (Ma)
C5AA
C5AB
C5AC
C5AD
C5B
C5C
C5D
C5E
C6
C6A
C6AA
C6B
C6C
13.65
15.97
20.43
23.03
Langhian
Burdigalian
Aquitanian
M
L
Miocene
Paleogene
15
20

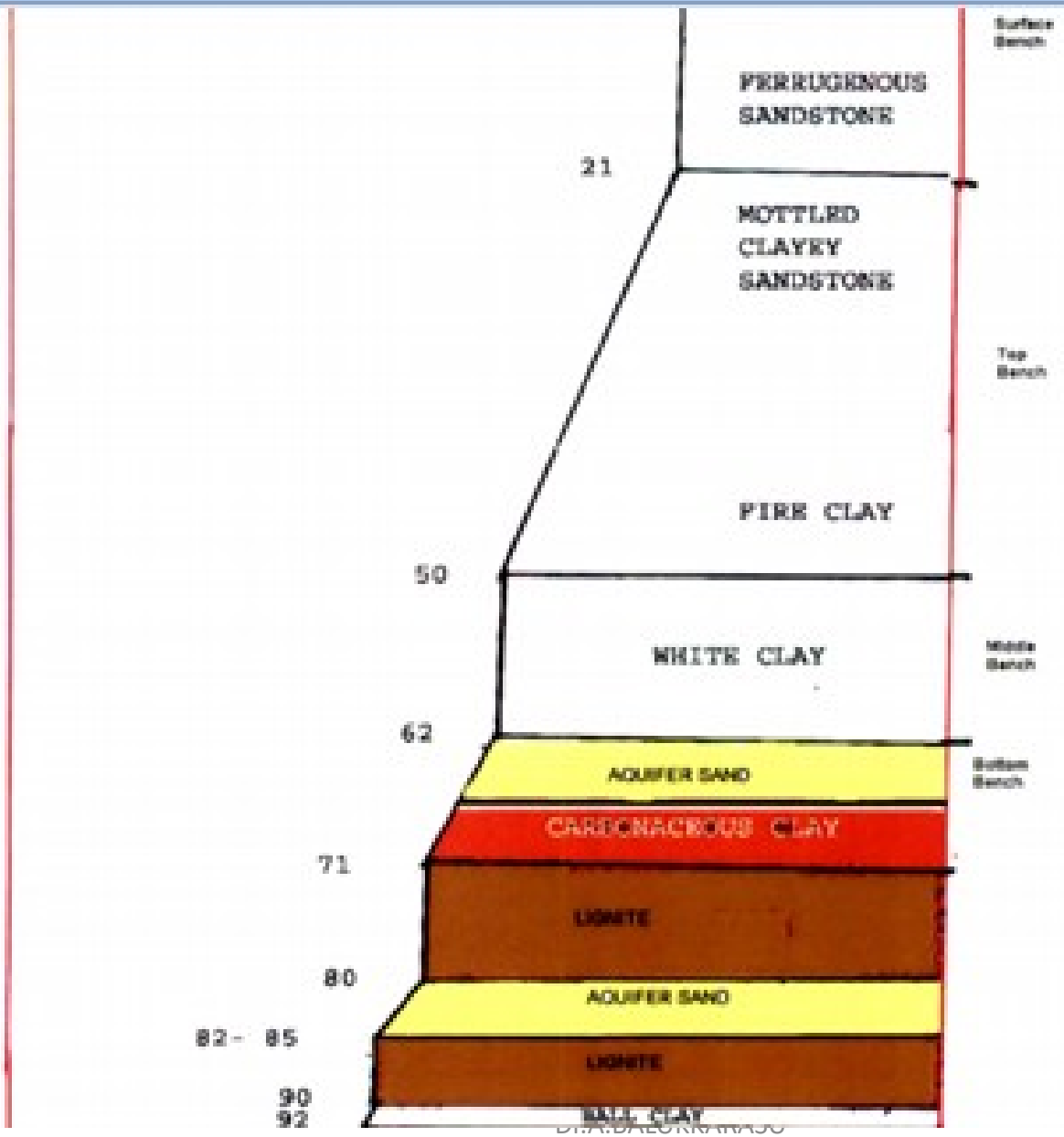
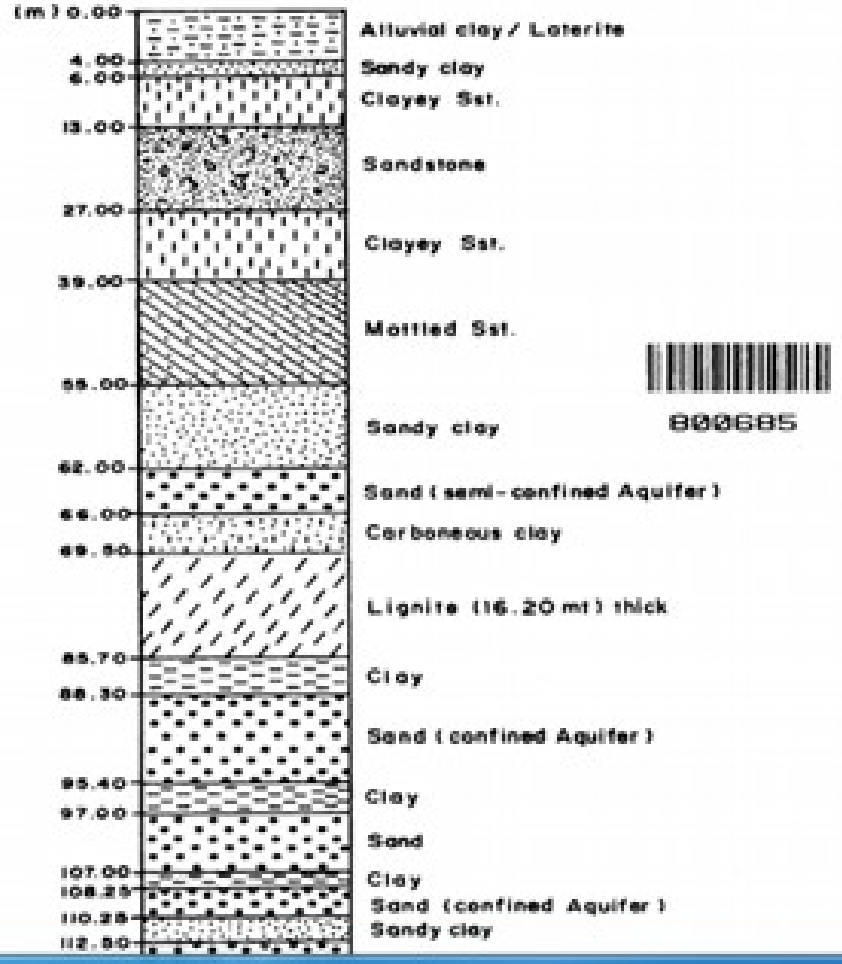
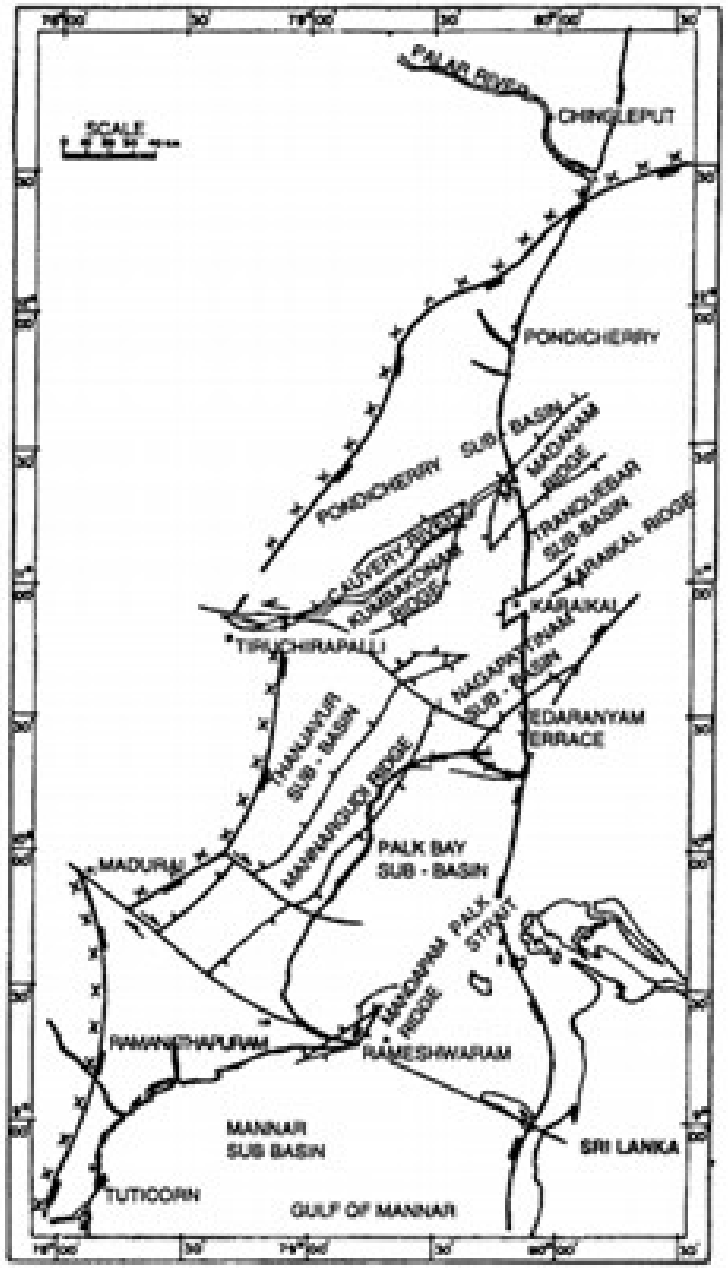
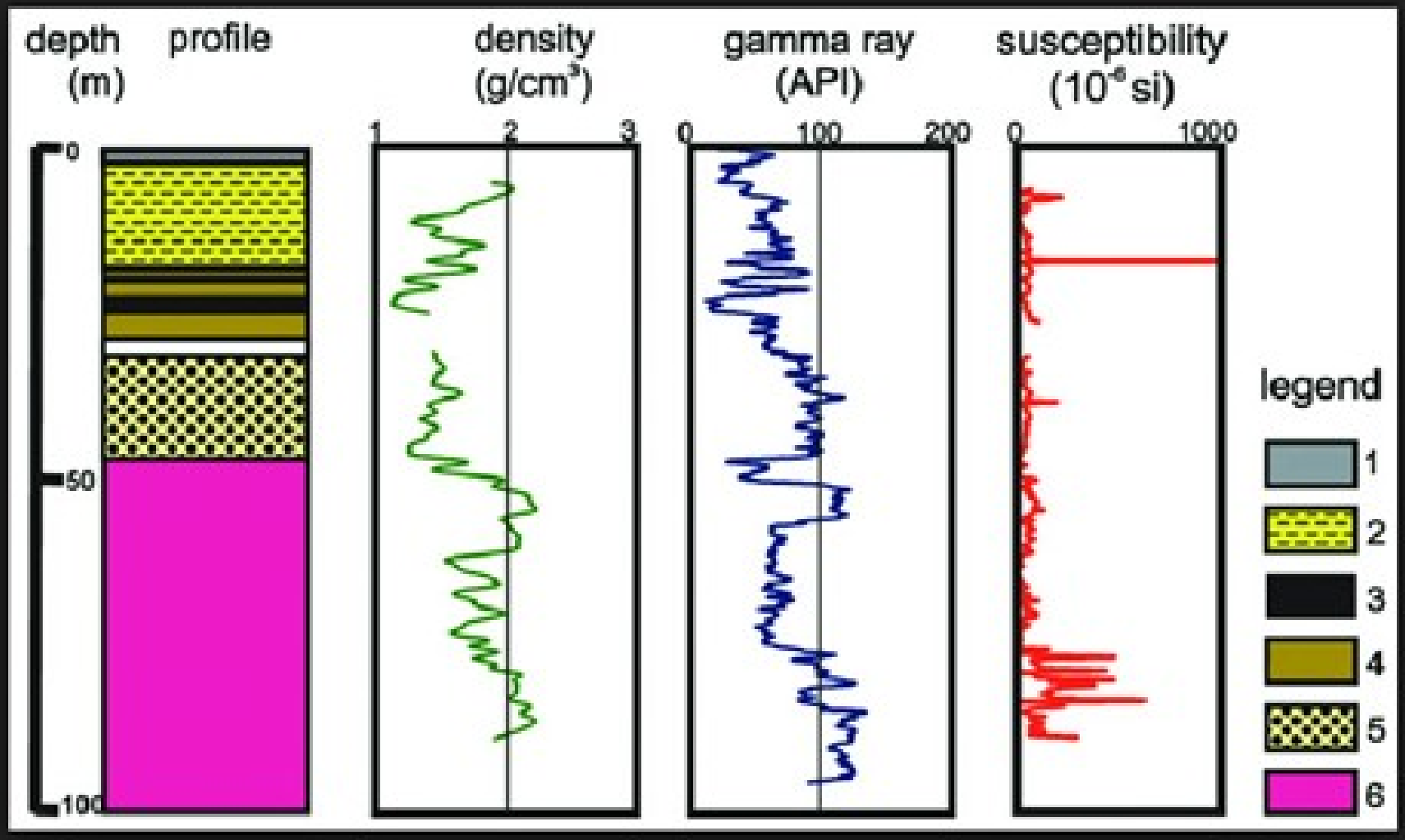

Surface Bench
FERRUGINOUS SANDSTONE
21
MOTTLED CLAYEY SANDSTONE
Top Bench
FIRE CLAY
50
WHITE CLAY
Middle Bench
62
AQUIFER SAND
Bottom Bench
CARBONACEOUS CLAY
71
LIGNITE
80
AQUIFER SAND
82- 85
LIGNITE
90
92
BALL CLAY

**Table 3.1 Stratigraphical succession of the Tertiary sediments of Tamil Nadu**

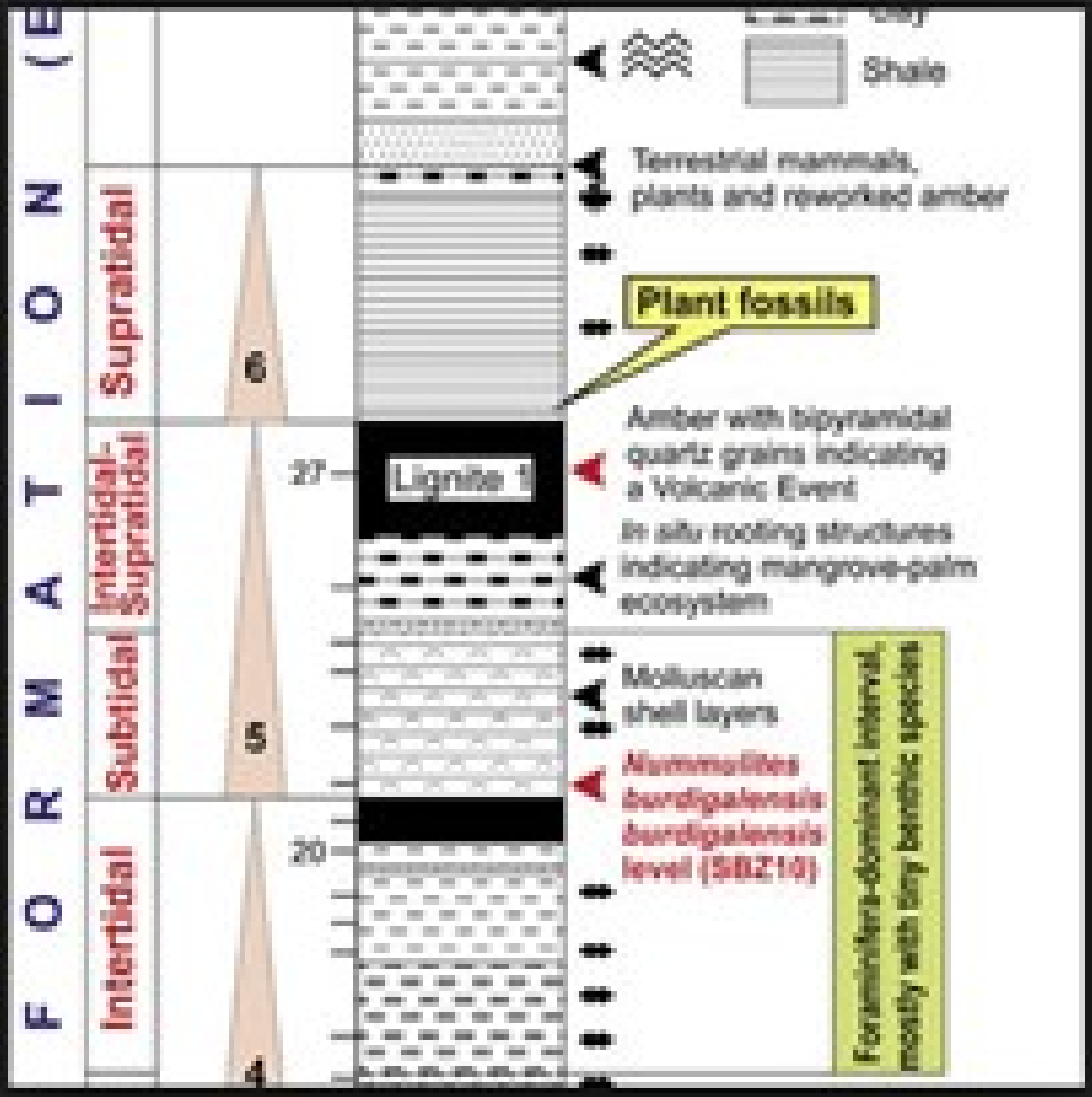
| | | |
|---|---|---|
| Recent | | Soils, alluvium, blown sands laterite and kankar |
| Tertiary | Upper Miocene (Cuddalore) | Argillaceous sandstones, pebble-bearing sandstones, grits, sands, clays, pebble bed. |
| | Probable Unconformity | |
| | Eocene | Black clays or shales, grey coloured sandstones, calcareous sandstones and shales, and siliceous limestones with fossils. |
| | Unconformity | |
| Mesozoic | Cretaceous (Ariyalurs) | Shell limestones, siliceous limestones, marls, etc., |
| | Unconformity | |
| Archaean | Intrusive rocks | Dolerite, Pegmatites and Quartz veins, Granitoid gneisses. |

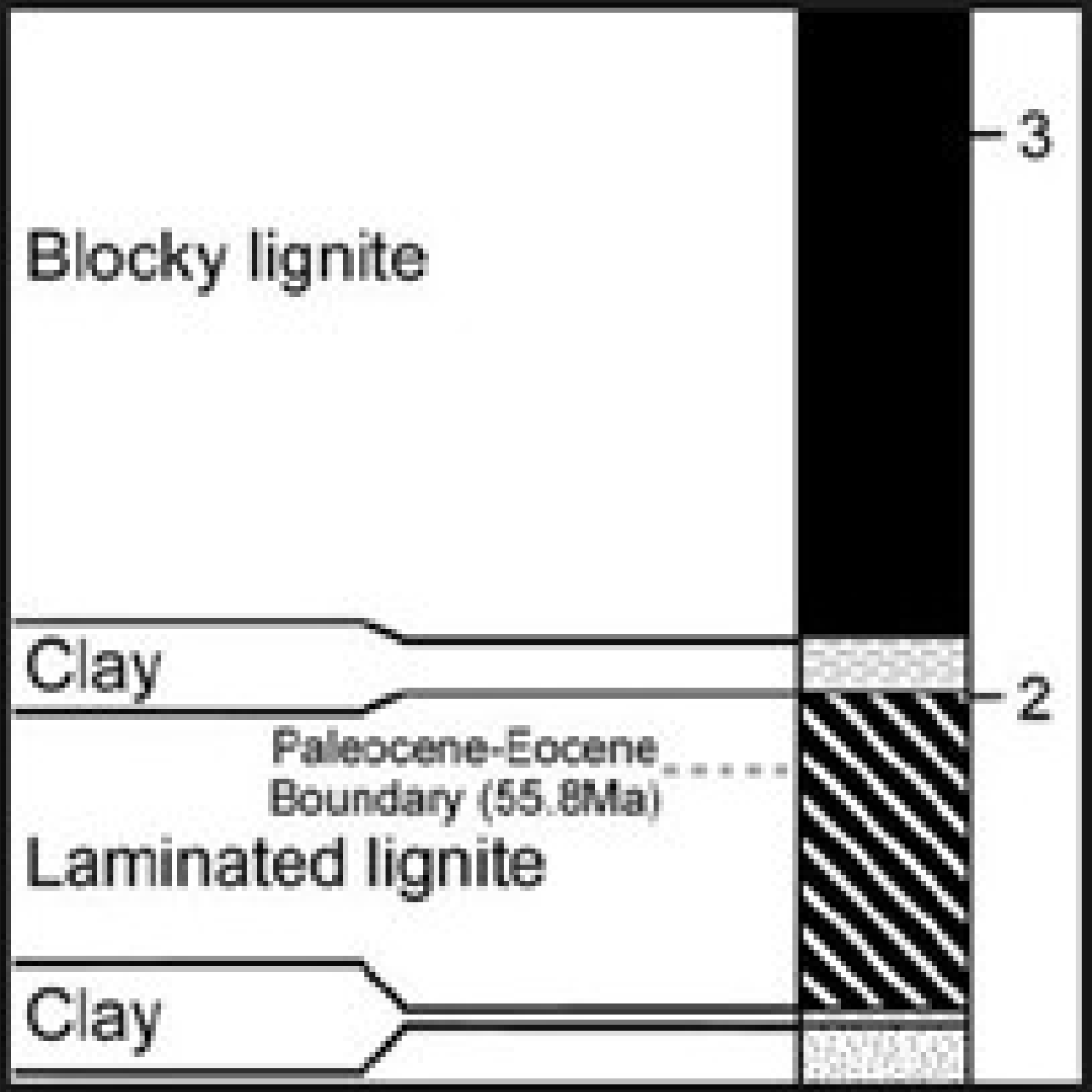


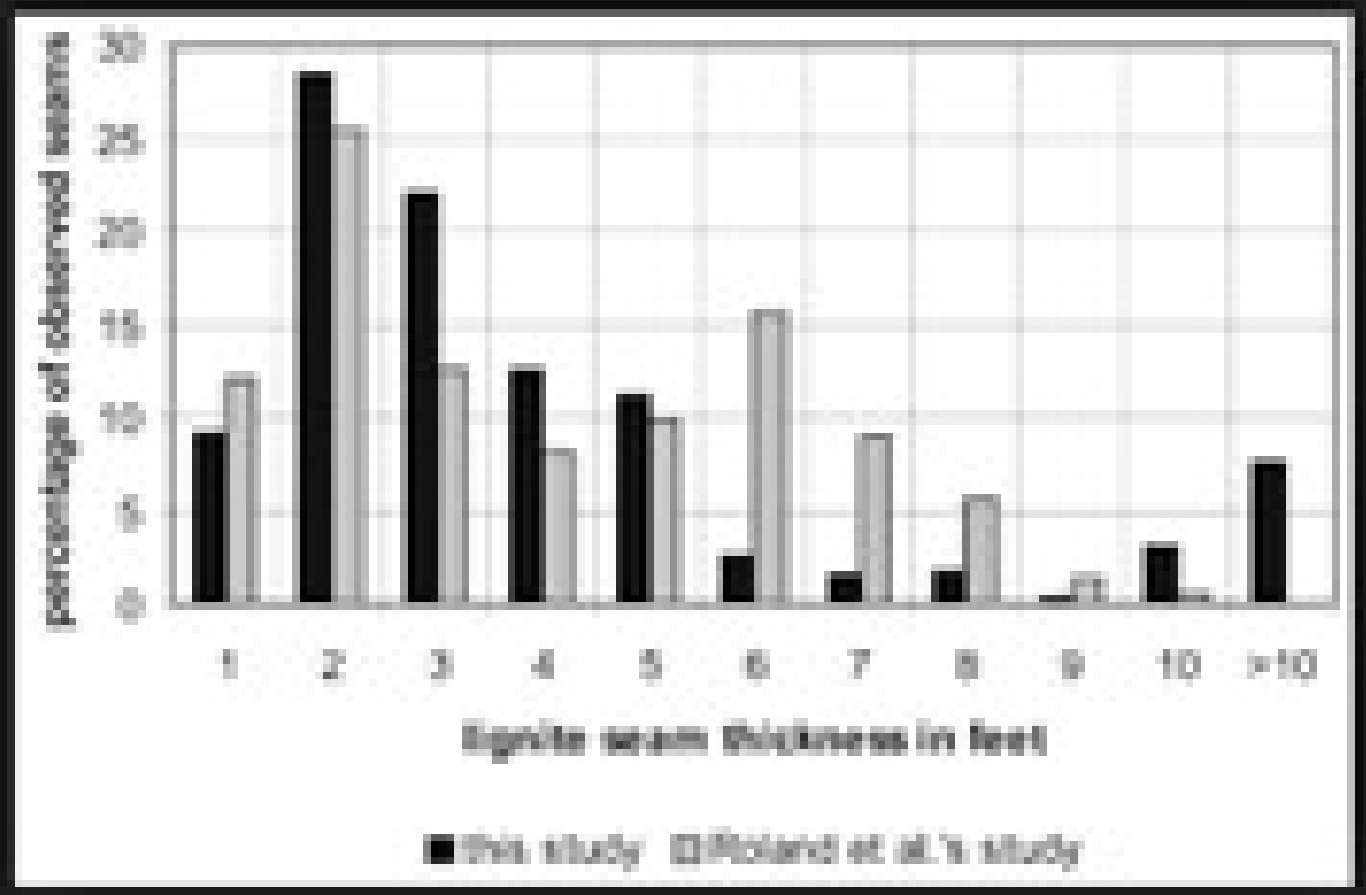

SCALE
PALAR RIVER
CHINGLEPUT
PONDICHERRY
PONDICHERRY SUB BASIN
KAVERY DELTA
KUMBAKONAM RIDGE
MADURAI RIDGE
TRANQUEBAR SUB-BASIN
KARAIKAL RIDGE
KARAIKAL
TIRUCHIRAPALLI
NAGAPPATTINAM SUB - BASIN
VEDARANYAM TERRACE
THANJAVUR SUB - BASIN
MANNARGUDI RIDGE
PALK BAY SUB - BASIN
MADURAI
PALK STRAIT
MANDAPAM RIDGE
RAMANATHAPURAM
RAMESHWARAM
MANNAR SUB BASIN
SRI LANKA
TUTICORIN
GULF OF MANNAR




723 × 428 - Images may be subject to copyright Find out more

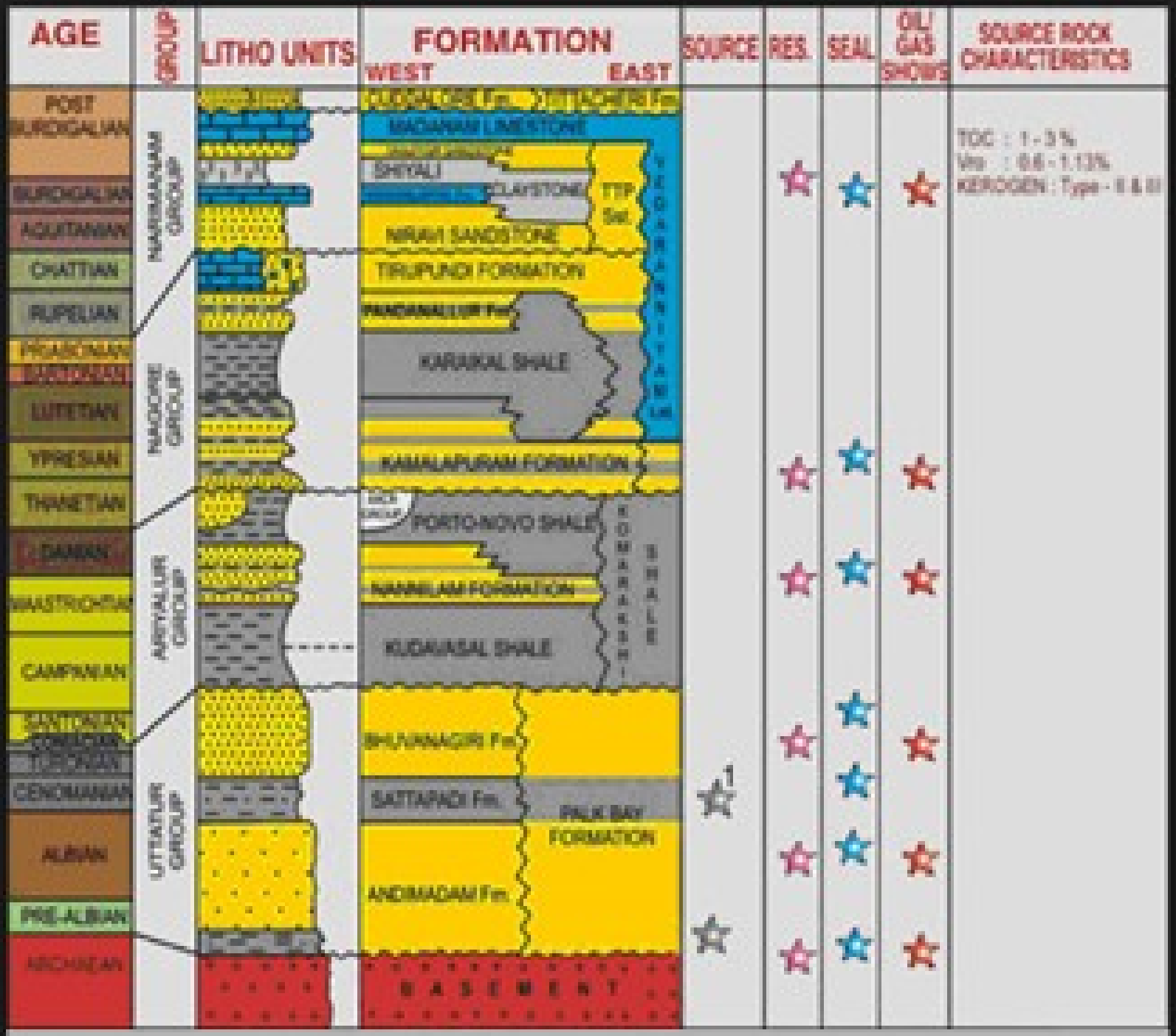


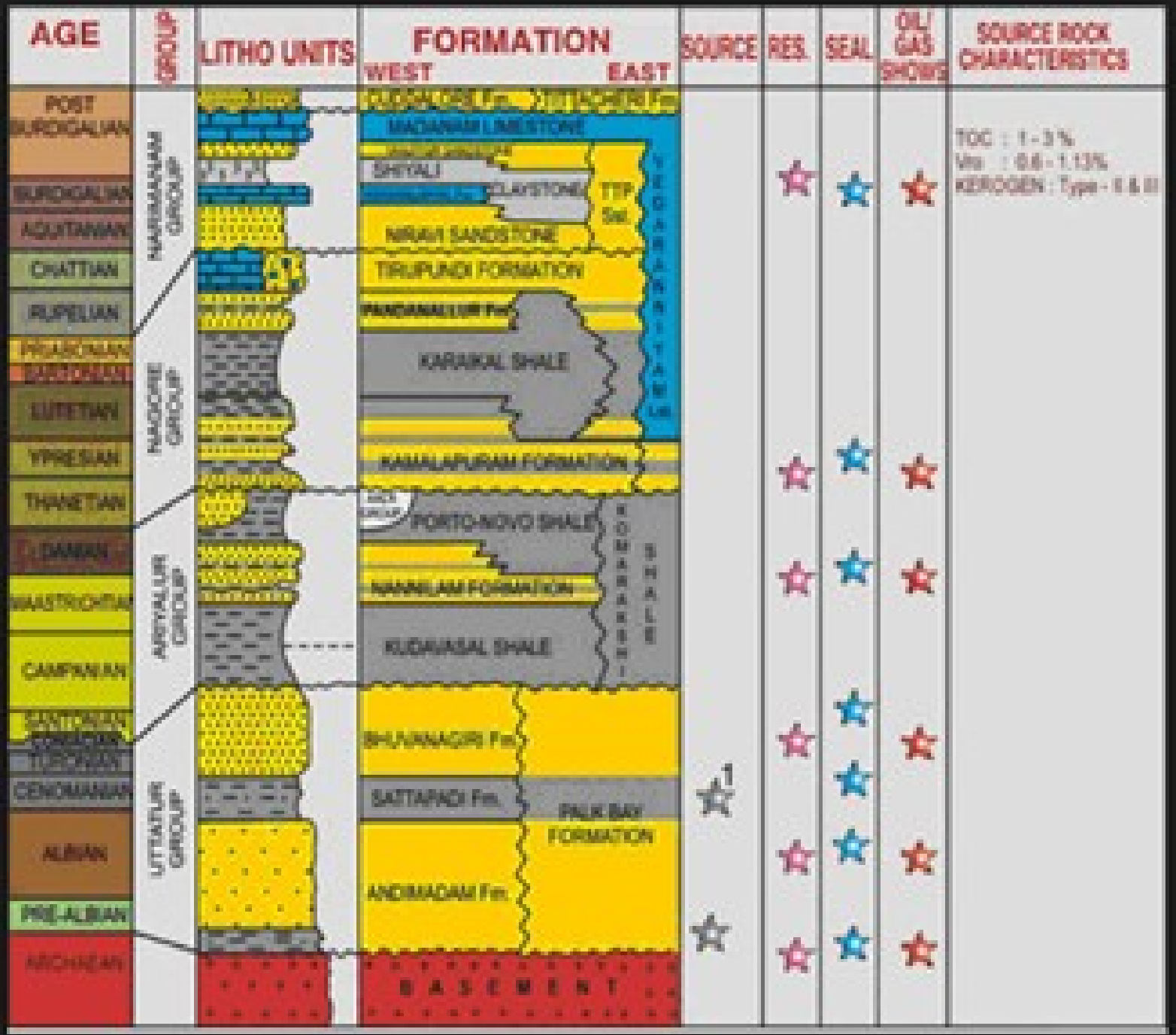





831 × 542 - Images may be subject to copyright Find out more


# ARIAL VIEW OF MINE - I


AGE
GROUP
LITHO UNITS
FORMATION
WEST
EAST
SOURCE
RES.
SEAL
OIL/ GAS SHOWS
SOURCE ROCK CHARACTERISTICS
POST BURDIGALIAN
BURDIGALIAN
AQUITANIAN
CHATTIAN
RUPELIAN
PRIABONIAN
BARTONIAN
LUTETIAN
YPRESIAN
THANETIAN
DANIAN
MAASTRICHTIAN
CAMPANIAN
SANTONIAN
CONIACIAN
TURONIAN
CENOMANIAN
ALBIAN
PRE-ALBIAN
ARCHAEAN
NARIMANAM GROUP
NAGORE GROUP
ARIYALUR GROUP
UTTATTUR GROUP
MADANAM LIMESTONE
SHIYALI
CLAYSTONE
TTP Sst
NIRAVI SANDSTONE
TIRUPUNDI FORMATION
KARAIKAL SHALE
KAMALAPURAM FORMATION
PORTO-NOVO SHALE
NANNILAM FORMATION
KUDAVASAL SHALE
BHUVANAGIRI Fm.
SATTAPADI Fm.
PALK BAY FORMATION
ANDIMADAM Fm.
BASEMENT
TOC : 1 - 3 %
Vro : 0.6 - 1.13%
KEROGEN : Type - II & III


AGE
GROUP
LITHO UNITS
FORMATION
WEST
EAST
SOURCE
RES.
SEAL
OIL/GAS SHOWS
SOURCE ROCK CHARACTERISTICS
POST BURDIGALIAN
BURDIGALIAN
AQUITANIAN
CHATTIAN
RUPELIAN
PRIABONIAN
BARTONIAN
LUTETIAN
YPRESIAN
THANETIAN
DANIAN
MAASTRICHTIAN
CAMPANIAN
SANTONIAN
CONIACIAN
TURONIAN
CENOMANIAN
ALBIAN
PRE-ALBIAN
ARCHAEAN
NARIMANAM GROUP
NADCHE GROUP
ARIYALUR GROUP
UTTATTUR GROUP
MADANAM LIMESTONE
SHIYALI
CLAYSTONE
TTP Sst.
NIRAVI SANDSTONE
TIRUPUNDI FORMATION
KARAIKAL SHALE
KAMALAPURAM FORMATION
PORTO-NOVO SHALE
NANNILAM FORMATION
KUDAVASAL SHALE
BHUVANAGIRI Fm.
SATTAPADI Fm.
PALK BAY FORMATION
ANDIMADAM Fm.
BASEMENT
VEDARANNIYAM
ROMANAM SHALE
TOC : 1 - 3 %
Vro : 0.6 - 1.13%
KEROGEN : Type - II & III

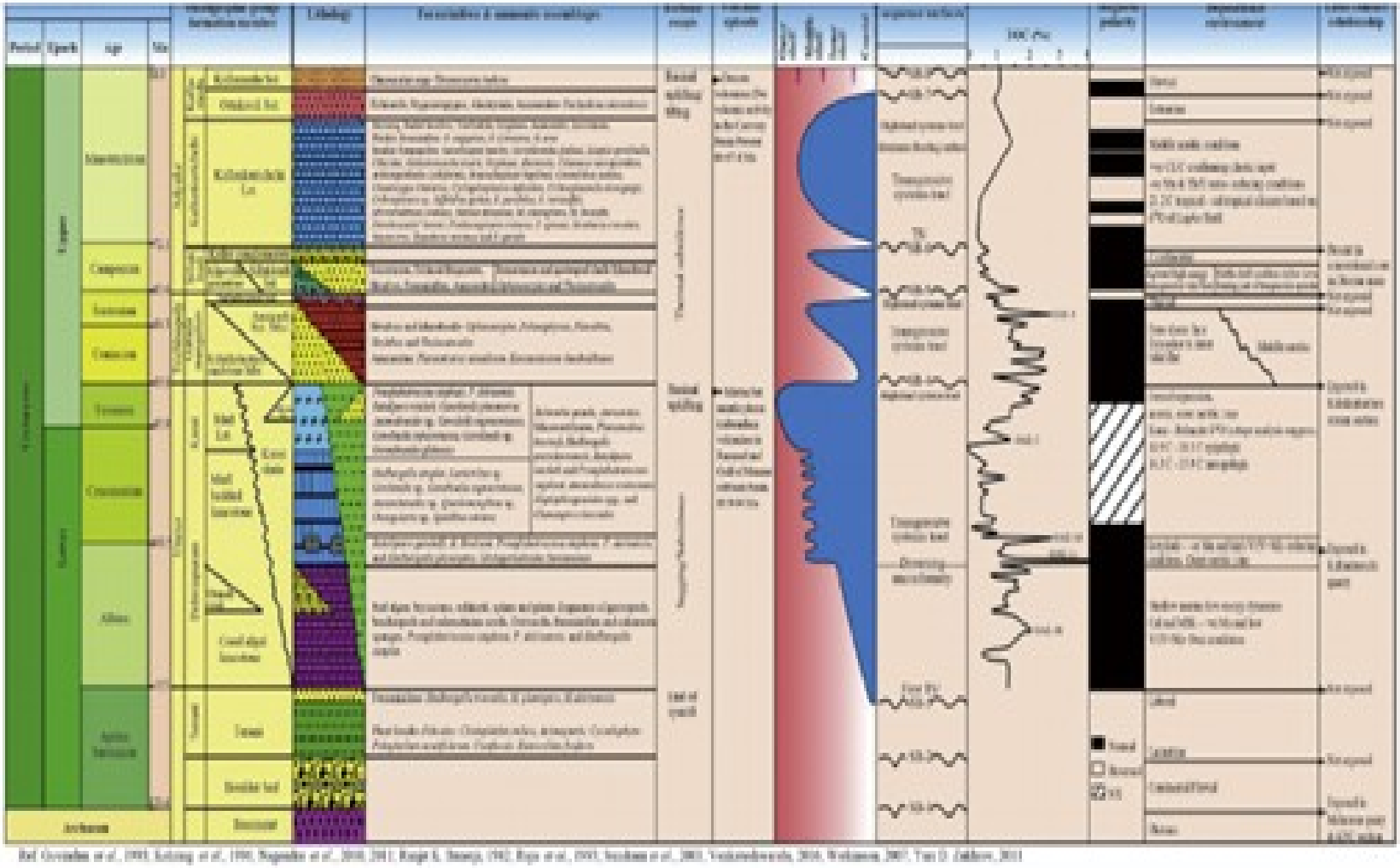
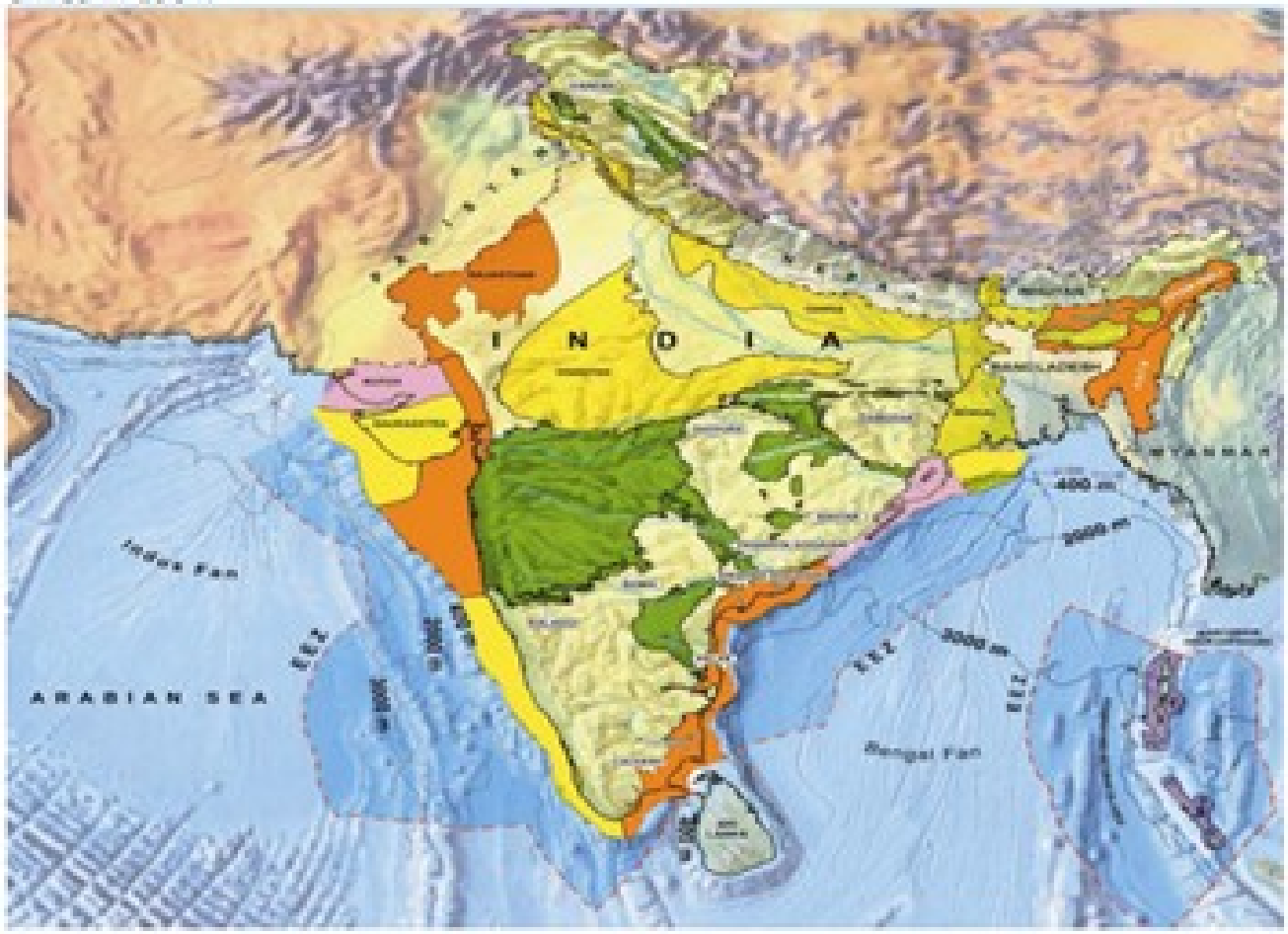


Fig. 3 Geological events, tectonic, volcanic, sea-level, sequence surfaces, OAE, biotic assemblages, depositional environment, litho contact records correlation with global episodes, Cauvery Basin, southern India.

The Cauvery Basin extending Extends along the East Coast of India, bounded by - 08º - 12º 5' North Latitude , 78º - 800 East Longitude has been under hydrocarbon exploration since late nineteen fifties. Application of CDP seismic in 1984 considerably increased the pace of exploration resulting in the discovery of several small oil and gas fields. The first deep well for exploration was drilled in 1964.




The Cauvery Basin covers an area of 1.5 lakh sq.km comprising onland (25,000 sq.km) and shallow offshore areas (30,000 sq km). In addition, there is about 95,000 sq km of deep-water offshore areas in the Cauvery Basin. Most of the offshore and onland basinal area is covered by gravity, magnetic and CDP Seismic surveys. Geological map for the outcrop terrain shows the exposed formations.

The Cauvery Basin extending Extends along the East Coast of India, bounded by - 08º - 12º 5' North Latitude , 78º - 800 East Longitude has been under hydrocarbon exploration since late nineteen fifties. Application of CDP seismic in 1984 considerably increased the pace of exploration resulting in the discovery of several small oil and gas fields. The first deep well for exploration was drilled in 1964.


The Cauvery Basin covers an area of 1.5 lakh sq.km comprising onland (25,000 sq.km) and shallow offshore areas (30,000 sq km). In addition, there is about 95,000 sq km of deep-water offshore areas in the Cauvery Basin. Most of the offshore and onland basinal area is covered by gravity, magnetic and CDP Seismic surveys. Geological map for the outcrop terrain shows the exposed formations.

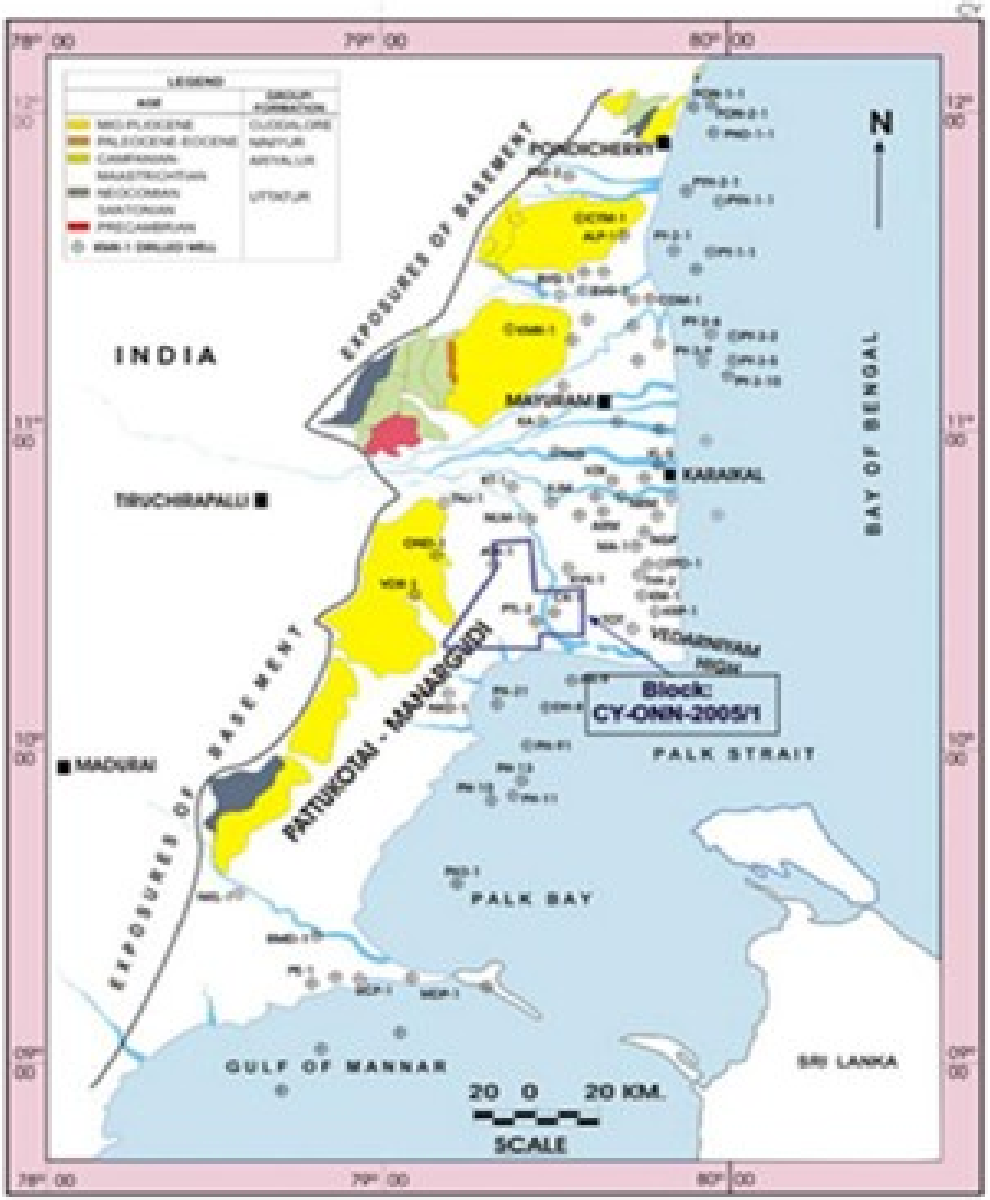
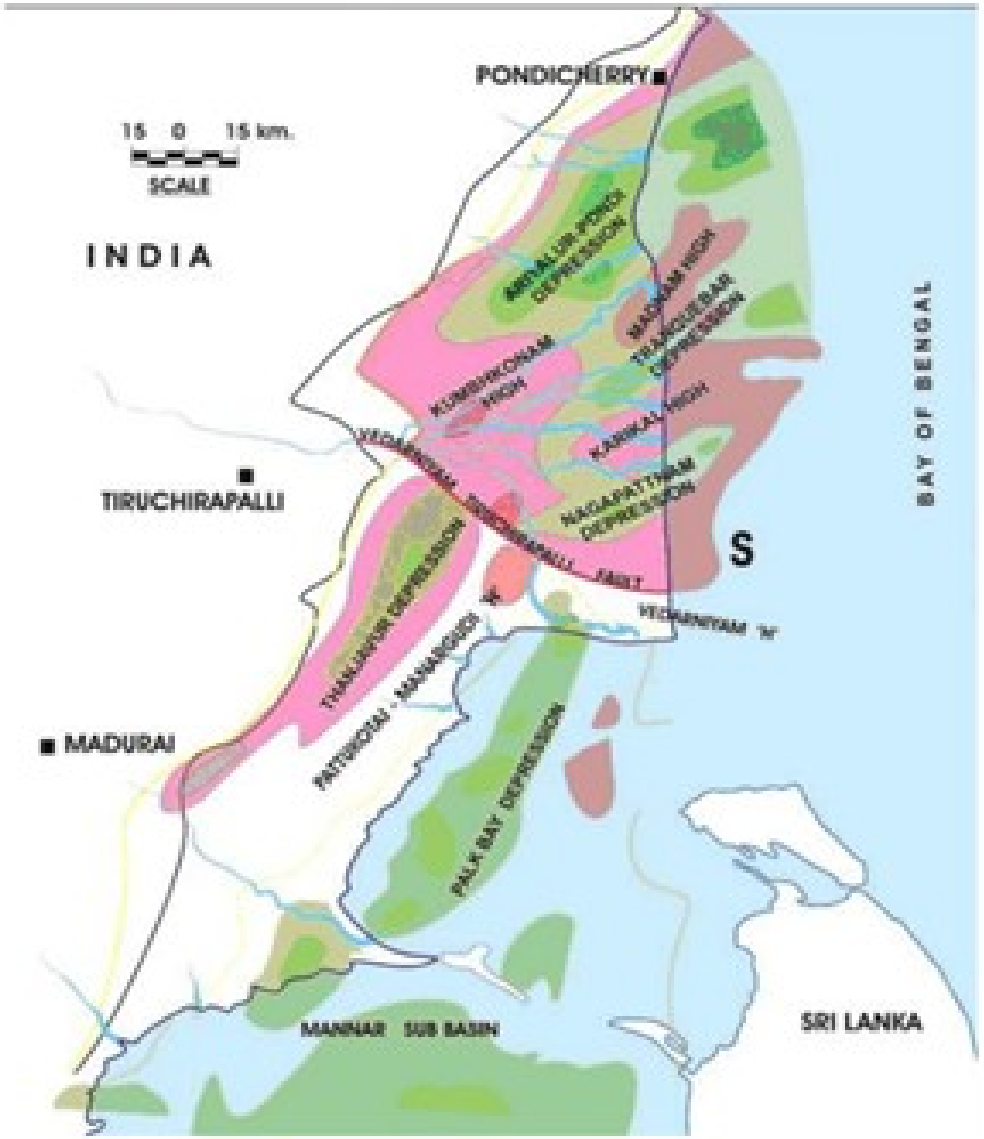



FIG. 2 GEOLOGICAL MAP OF CAUVERY BASIN

- Mannar Depression
- Vedarniyam – Tiruchirapally Fault




**Generalized Stratigraphy :.**

The stratigraphy is worked out from outcrop geology and sub-surface information gathered from seismic and drilling data.