

GINDRE – CHANU Laurent

44 years old (born in 1976)
French nationality

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Principal Geologist
Carbonates and Evaporites Expertise
Oil & Gas Exploration – Reservoir & Petroleum Systems

TECHNICAL PROFESIONNAL SKILLS

Sedimentology (Core, slabs, cuttings, fieldwork):

- Siliciclastics, Carbonates, Evaporites
- Facies characterization, Diagenesis, Depositional model
- Sequence stratigraphy

Petroleum system Analysis

- Basin Analysis & Play elements evaluation
- GDE, CRS, CCRS, Petroleum Provinces maps
- QA/QC Prospectivity Evaluation & Risking

Well data interpretation (Core, Log, Thin Section)

- Well log analysis, well correlations
- Petrophysical analysis & Rock-typing
- Petrography (TS, QUEMSCAN, SEM, EDS)
- Litho-bio-chronostratigraphical chart
- Reservoir properties evaluation (Φ , K, S)
- Isotope geochemistry (C, O, S, Sr)

Seismic interpretation

- 2D and 3D PSDM/PSTM Seismic Interpretation
- Seismic Stratigraphy
- seismic facies and attributes analysis
- Rock Physics integration

Reservoir characterization & Geomodelling

- 3D Geological modelling (Petrel)
- Fractures (*dip, azimuth*)
- HC Volume estimates

Geotechnical properties

- TCR, SCR, RQD core characterization

Topics and areas of studies

- **Carbonates** (Paleozoic, Jurassic & Cretaceous, Tertiary) : Barents Sea, Russia, Iran, Iraq, Qatar, Angola, Brazil, Spain, Italy, North African margin, SW France, Oman, Abu Dhabi
- **Siliciclastics**: Bolivia, Argentina, Morocco, Algeria, Tunisia, Libya, GOM, S Caspian Sea, Ivory Coast, Kenya
- **Pre-Salt/Salt/Post-Salt**: Angola, Brazil, GOM, France, Congo, Gabon, East Med
- **Unconventional**: tight gas (Algeria), Domanik Shale (Russia)

PROFESSIONAL MILESTONES (detailed p2)

- **2017 till now** **TERRA GEOSCIENCES, Consultant**, Siliciclastics, Carbonates & Evaporites Sedimentology expertise, Reservoir & Basin analysis, Petroleum systems evaluation, Oil & Gas prospectivity and Risks assessment
- **2007 - 2016 (9y)** **STATOIL (Norway)**
Carbonate department, Petroleum system analysis - Basin to reservoir appraisal
Project Leader: Evaporites project

- 2005 - 2006 (1y1/2) **BEICIP-FRANLAB (France)**
Exploration Geology – Reservoir evaluation
- 2004 (1y) **Post-Phd - Université Géosciences Rennes I (France)**
- 1999 - 2003 (3y1/2) **PhD - Université H. Poincaré - CREGU Nancy – TOTAL SA (France)**

EDUCATION

- 2003 **PhD Carbonates Sedimentology, basin Analysis - Geosciences.** *With distinction.* University Henry Poincaré, Nancy II. CREGU / TOTAL contract. (Leaders: Malartre, F. & Rubino, J.L.).
- Sedimentology, sequence stratigraphy and palaeogeography (Iraq, Iran, Qatar, Oman, Abu Dhabi, UAE) - SARVAK, Mishrif Fm. Cenomanian – Turonian**
- 1999 **MSc in Geology** (DEA Geosciences). *With mention.* DEA *Sedipal*. University of Bourgogne, Dijon.

PROFESSIONAL EXPERIENCES

From 2017: Expert TERRA Geosciences, Consultant

- 2021 E-learning course Sedimentology Clastics – Carbonates- Sequence Stratigraphy, Applied well logs (**IFP TRAINING – SONANGOL**), France (2 weeks)
- Expertise ROV analysis (**EDF EN**) Wind Farm St Nazaire Project, France (5 days)
- 2020 Oil & Gas Prospectivity Study, (**VERMILION**), Seebach Permit, Upper Rhine Graben, Alsace, France (7 months)
- Competence Evaluation workflow in Sedimentology, (**IFP TRAINING – SONANGOL**), France (2 weeks)
- Oil & Gas prospectivity, CRS maps, Petroleum provinces and Risks evaluation, Lamu & Lotikipi Basins, Offshore & Onshore Kenya, (**KETAP- BEICIP-FRANLAB**), France (4 weeks)
- 2019 Stratigraphy, facies and sequential Architecture of Loémé Evaporites (CONGO), Holle mine, (**TOTAL**), France (1 year)
- Asset Evaluation Abu Dhabi Blocks Bid Round 2019, (**ONGC – BEICIP-FRANLAB**), France (2 weeks)
- Oil & Gas prospectivity, CRS maps, Petroleum provinces and Risks evaluation, Zambeze Basin, Offshore Mozambique, (**QP- BEICIP-FRANLAB**), Qatar, France (3 weeks)
- Oil & Gas prospectivity, CRS maps, Petroleum provinces and Risks evaluation, Ivory Coast and Tano Basins, Ivory Coast, (**QP- BEICIP-FRANLAB**), Qatar, France (3 weeks)
- Biogenic shallow gas evaluation of the Gachsharan Fm., onshore-offshore Abu Dhabi, sedimentology, sequence stratigraphy, reservoir and seal characterization, basin analysis (**ADNOC – BEICIP FRANLAB**), Abu Dhabi, France (2 months)
- 2018 Oil & Gas prospectivity, CRS maps, Petroleum provinces and Risks evaluation, South Caspian Sea Basin, (**QP- BEICIP-FRANLAB**), Qatar, France (3 weeks)

Biogenic shallow gas evaluation of the Gachsharan Fm., onshore Abu Dhabi, sedimentology, sequence stratigraphy, reservoir and seal characterization, basin analysis (**ADNOC – BEICIP FRANLAB**), Abu Dhabi, France (2 months)

Geotechnical & Geological Supervision of Eocene siliciclastic and dolomitized carbonates cores description for Offshore Wind Farm construction site. QC and Integration Study (**EDF EN - FUGRO France**) St Nazaire Project, France (3 months).

Technical Support / Advises for Reservoir Evaluation and workflow of a Potash-bearing continental Sabkha (**SOFRECO**), Saudi Arabia (3 weeks).

2017 Petroleum System Analysis, courses, Rende University, Calabria, Italia (2 days, May, 2017),

Project leadership: Upper Cretaceous Carbonates of the Aquitaine Platform (SW France),

Project leadership: Evaporites & potash (Example of Onshore Congo, Aptian salt),

Project leadership: Evaporitic carbonates platforms & reservoir prediction in compressive systems (Example of the Upper Messinian Calcare di Base, S Italia),

Cores description, Carbonates & Siliciclastics (Lower Aptian), Cazaux field, Parentis Basin, France (**VERMILLION**) (2 days)

2007 - 2016 (9y): Principal Geologist, Researcher - Project leader, STATOIL A.S.A., Norway

✓ 2015- 2016: - Evaporites/ Carbonates Expertise, Exploration Excellence

2015 Reservoir and Play evaluation, Carbonates Palaeozoic, **Barents Sea, Russia**

2016 Unconventional Source Rock and Reservoir evaluation, Palaeozoic clastics, **Algeria**

✓ 2010-2015: Basin Petroleum System Analysis, RDI BSA Department

2010 Pre-salt Carbonate systems, **Santos Basin, Brazil**

Salt stratigraphy, **Santos & Campos Basins, Brazil**

Pre-salt, salt and post-salt stratigraphy , basin analysis, Petroleum system evaluation, **Namibe basin, South Angola**

✓ 2009-2010: Deep-water siliciclastics systems Analysis, RD EXPLORE Deep-water Department

2009 Palaeocene deep-water gravity-flow siliciclastic system, Wilcox member, **Perdido foldbelt, Keathley canyon, Walker ridge area, GOM**

Salt Stratigraphy and Petrography, GOM

✓ 2007-2009: Basin Petroleum System Analysis, RD BSA Department

2008 Palaeozoic basin analysis (Cambrian to Permian), **Al Kufrah basin, SE Libya** (*Outcrop, Seismic interpretation, well analysis, petroleum system evaluation*)

Palaeocene carbonates sedimentology, **Sirte basin, N Libya** (*Facies analysis, Mabruk field*)

2007 Basin analysis in North Africa - Paleozoic system, **Algeria and Libya**

- *Regional stratigraphy and basin evolution,*

- *Expertise and support on Timimoun basin (stratigraphy, wells correlation, seismic interpretation, basin analysis) (Hassi mouina field support, Algeria).*

- *Cores descriptions and wells correlation in Berkine – Illizi basin (Algeria).*

- *Wells correlation and seismic interpretation in Ghadames basin (Libya).*

2005-2006 (1y 1/2) : Senior Exploration Geologist, BEICIP-FRANLAB (IFP group)

2006 Lutetian nummulitical shallow-shelf carbonate sedimentological analysis, Gialo formation, Gialo

field, **Libya**.

- *Facies model characterization, correlations, rock-typing, geological modeling with Petrel software, HC volume estimates and grid upscaling.*

Geological & Reservoir model of the mixed upper Callovian to Kimmeridgian M'Rabtime member, Ezzaouia field, **S Tunisia**.

- *Facies modeling and petrophysical modeling, HC volumes estimates.*

Evaporitic shallow-shelf carbonate Sedimentological and stratigraphical analysis (cores descriptions) of the Kimmeridgian Arab D formation, Bul Hanine field, **Qatar**.

- *Facies model characterization and wells correlations.*

2005 Dipmeter logs interpretation on the Cusiana Field, **Colombia**.

Cores descriptions, shaly / sandy series, Sarir group (middle Jurassic – lower Cretaceous), Magid field, **Libya**.

Subsurface database management and updating of Hassi Messaoud area, **Algeria**.

2004 (1y) : Post PhD Silicilastics Sedimentology. University of Rennes I. Beaulieu campus - FRANCE.
CNRS / TOTAL contract. (Leaders: Guillocheau, F. & Rubino, J.L.).

Research subject: Sedimentologic analysis and sequential stratigraphy of subandean Devonian series in a complex deltaic terrigenous (north Argentina & Bolivia).

1999 - 2003 (4y): PhD Carbonates Sedimentology, University Henry Poincare, Nancy II - FRANCE.

Research subject: Sedimentology, sequential stratigraphy and paleogeography of carbonate Cenomanian series at occidental Tethys scale. Comparison between the arab-persian gulf and the Provence

1999 (6m) : Geosciences Master II, University of Bourgogne, Dijon - FRANCE.

(Leaders: Guiraud, M. & Garcia, J.P.)

Research subject: Control factors of the stratigraphic record of the Los Cameros extensive continental basin (north Spain). Tectono-sedimentay analysis of lower Cretaceous Enciso and Olivàn formations.

FOREIGN LANGUAGES

English: fluent

Spanish: moderate

Norwegian: basics

COMPUTER SKILLS

WELLCAD

PETREL (Schlumberger) – **OPENWORKS, SEISWOKS** (Landmark) – **EARTHQUICK**

GEOTERIC - ARCGIS, GOOGLE EARTH PRO

GENEX (IFP) - **RML and Easy Trace** (Beicip-Franlab)

Office Pac (PC / Macintosh), Canevas, Adobe Illustrator, Adobe Photoshop (all versions)

ACTIVITIES / HOBBIES

- Reviewer, Journal of Petroleum Geology

- HSE coordinator, Field guide, Driving License type E
- Member experts group CVA “Integrated studies”,
- Member Expert Kalivie Museum (ex-Mines de Potasses d’Alsace, MDPA),
- Travels, Sports (climbing, running, tennis, squash), Fly-fishing, reading, cinema, music, painting.

PUBLICATIONS

BORRELLI M. , PERRI E. , CRITELLI S. and **GINDRE-CHANU L.** (2020). The onset of the Messinian Salinity Crisis in the central Mediterranean recorded by pre-salt carbonate/evaporite deposition. *Sedimentology*, p.1-25.

GINDRE-CHANU L., BORRELLI M., CARUSO A., CRITELLI S. & PERRI, E. (2019). Carbonate/evaporitic sedimentation during the Messinian salinity crisis in active accretionary wedge basins of the northern Calabria, Southern Italy. *Journal of Marine and Petroleum Geology*, 112, p. 1-18.

PERRI E., BORRELLI M., BERNASCONI M.P.E., SPADAFORA A., CRITELLI S. & **GINDRE-CHANU L.**, (2019). Microbial-dominated carbonate depositional systems: a biosedimentary and stratigraphic reconstruction in the Late Triassic of Western Tethys (northern Calabria, Italy). *Facies* 65, p. 31.

PERRI E., **GINDRE-CHANU L.**, CARUSO A., CEFALÀ M., SCOPELLITI G. & TUCKER M. (2017). Microbial-mediated pre-salt carbonate deposition during the Messinian salinity crisis (Calcare di base fm., southern Italy). *Journal of Marine and Petroleum Geology*, 88, 235-250.

GINDRE-CHANU L., PERRI, E., SHARP R. I., PEACOCK D.C.P., SWART R., POULSEN R., FERREIRA H., MACHADO V. (2017), Origin and diagenetic evolution of gypsum and microbialitic carbonates in the Late Sag of the Namibe Basin (SW Angola), *Sedimentary Geology*, 342, p. 133-153.

GINDRE-CHANU, L., WARREN, J.K., PUIGDEFABREGAS, C., SHARP, I.R., PEACOCK, D.C.P, SWART, R., POULSEN, R., FERREIRA, H. & LOURENCO H.(2014), Diagenetic evolution of Aptian evaporites in the Namibe Basin (south-west Angola). *Sedimentology* 62(1), p.204-233.

LE HERON, D.P., WILSON C., AMSTRONG H., HOWARD J.P., **GINDRE L.** (2010). Glaciation and deglaciation of the Libyan Desert: The Late Ordovician record *Sedimentary Geology*. *Sedimentary Geology*, 223 (1-2), p. 100-125.

GINDRE L., LE HERON D.P. & BJØRNSETH H.M. (2011), High resolution facies analysis and sequence stratigraphy of the Siluro-Devonian succession of Al Kufrah basin (SE Libya), *Journal of African Earth Sciences*, 76, p. 8-26.

GINDRE L. & RUBINO J.L., Facies, log responses and sequence stratigraphy of a carbonate reservoir: Example of the Mishrif Formation (Cenomanian). – *waiting for Total authorization before submission*

CONGRESS TALKS

PICCHAT, A., DELHAYE-PRAT, V., **GINDRE-CHANU, L.** & WOLFF P., Stratigraphic architecture and evolution of the Cretaceous evaporites of the West African margin, insight from the proximal domain of the South Gabon, Congo and Cabinda area. Réunion des Sciences de la Terre, 26ème édition, 2018, Lille.

GINDRE-CHANU, L., WARREN, J.K., PUIGDEFABREGAS, C., SHARP, I.R., PEACOCK, D.C.P, SWART, R., POULSEN, R., FERREIRA, H. & LOURENCO H., Diagenetic evolution of Aptian evaporites in the Namibe Basin (south-west Angola), Karst & sedimentary basins workshop; Ales, September 2017.

GINDRE-CHANU L. Are Evaporitic carbonates good reservoirs ?, EAGE Exhibition, CVA stand, June 2017, Paris

GINDRE-CHANU L. The studies of Evaporitic basins, EAGE Exhibition, CVA stand, June 2017, Paris

GINDRE-CHANU L., PERRI, E., SHARP R. I., PEACOCK D.C.P., SWART R., POULSEN R., FERREIRA H., MACHADO V. Origin and diagenetic evolution of gypsum and microbialitic carbonates in the Late Sag of the Namibe Basin (SW Angola), IAS congress, Manchester, September 2013

LE HERON, D.P., WILSON C., AMSTRONG H., BJØRNSETH H.M. & **GINDRE L.** - Large-scale depositional environments and soft-sediment deformation within Late Ordovician glacially related sediments, eastern Libya.

BJØRNSETH H.M., **GINDRE L.**, HIGGINS S., SCHIMANSKI A., GRÖGER H.R., VANDRÉ C., BONNIER B. & GEIGER M. – Basin evolution of the Al Kufrah basin in southeast Libya. - 4th North African/Mediterranean Petroleum and Geosciences Conference & Exhibition. EAGE congress, 2-4 macrh 2009, Tunis.

WILSON C.R., LE HERON D., AMSTRONG, **GINDRE L.** - Reappraisal of the stratigraphy, sedimentology and depositional environments of the Late Ordovician succession in Al Kufrah Basin, SE Libya, and implications for

petroleum exploration. - 4th North African/Mediterranean Petroleum and Geosciences Conference & Exhibition. EAGE congress, 2-4 march 2009, Tunis.

BJØRNSETH H.M., HIGGINS S., SCHIMANSKI A., **GINDRE L.**, GRÖGER H.R., VANDRÉ C., TISCHLER M., BONNIER B. & GEIGER M. – Outcrops studies and basin analysis in Al Kufrah basin, SE Libya. - Sedimentary basins of Libya, 4th symposium, November 17-20, 2008, Tripoli, Libya.

GINDRE L., BJØRNSETH H.M. – Siluro-devonian stratigraphical and sequential framework in the Kufrah basin, southeast Libya. - Sedimentary basins of Libya, 4th symposium, November 17-20, 2008, Tripoli, Libya.

BJØRNSETH H.M., **GINDRE L.**, SCHIMANSKI A., HIGGINS S., GRÖGER H.R., VANDRÉ C. & GEIGER M. - Basin analysis in onshore petroleum exploration – A case study from the Kufrah Basin, Southeast Libya. International Oslo Conference, June 2008, Oslo, Norway.

GINDRE L., GUILLOCHEAU F. & RUBINO J.L. – Le Silurien terminal et le Devonien du bassin Chaco (NW Argentine et Sud Bolivie) : facies et sequence de facies. *ASF congress*, Marseilles, France.

GINDRE L., RUBINO J.L., & MALARTRE F. – Anatomy of forced regression on a carbonate shelf context (Mishrif formation, Arab-persian Gulf). *IAS congress*, Muscat, Oman.

GINDRE L., RUBINO J.L. & MALARTRE F. - Stratigraphic and sequential architecture of Cenomanian series of South Provençal basin (Cassis-La Bédoule, SE France): Forced regression anatomy on the external ramp of flexural basin. *SGF congress*, France and occidental Europe Cretaceous basins. 2003, Paris, France.

GINDRE L., RUBINO J.L., MACHHOUR L., MALARTRE F., SOUDET H. & LANDAIS P. - Architecture, depositional systems and sequential stratigraphy of Cenomanian series of Basse Provence (Cassis - La Bédoule). Lowstand system tracts expression. 2002, *STRATI 2002 congress*, Lyon, France.

GINDRE L., RUBINO J.L., MALARTRE F., SOUDET H. & LANDAIS P. – Sequential stratigraphy of Cenomanian deposits. Example of the Mishrif formation. Applications to Buzurgan, Fauqi, Abu Ghirab & Majnoon fields (S Iraq), 2001, *ASF congress*, Orléans, France.

GINDRE L., GUIRAUD M., GARCIA J.P. & SALOMON J. - Control factors of the stratigraphic record of the Los Cameros extensive continental basin (north Spain), 1999, *ASF congress*, Nancy, France.

Awards

GINDRE L., RUBINO J.L., MACHHOUR L., MALARTRE F., SOUDET H., LANDAIS P. - Architecture, depositional systems and sequential stratigraphy of Cenomanian series of Basse Provence (Cassis - La Bédoule). Lowstand system tracts expression. 2002, *STRATI 2002 congress*, Lyon, France. – 1st/60 ranked : ***Best award congress poster.***