

Fluvial Architecture Knowledge Transfer System FAKTS



A relational database for the digitization of fluvial architecture: conceptual scheme and overview of possible applications

L. Colombera, N.P. Mountney, W.D. McCaffrey - Fluvial Research Group, University of Leeds, Leeds, LS2 9JT, UK

INTRODUCTION Fluvial architecture is the ensemble of geometry, proportion, internal organization and spatial distribution of genetic bodies within fluvial successions (cf. Allen, 1978). A relational database - the Fluvial Architecture Knowledge Transfer System (FAKTS) - has been devised as a tool for translating numerical and descriptive data and information about fluvial architecture coming from fieldwork and peer-reviewed literature, from both modern rivers and their ancient counterparts in the stratigraphic record. The work herein presented focuses on the latter case, showing the basic concepts about the database scheme and data definition, and some possible outputs and their applications. Comparative studies DATABASE Scientific literature of fluvial architecture Data entry procedure QUANTITATIVE with fluvial architecture **INFORMATION** Modelling of standardization Field studies fluvial architecture Interrogation Above: Large scale depositional elements Architectural elements flowchart showing the data FF [SCALE: m to hm] acquisition-entryquery-analysis/use workflow described in this poster.

DATAB	AS	SE	SCHEM	Ξ-	the appro	bach				The stratigraphy of preserved ancient
DATA SOURCE			SUBSETS		DEPOSITIONAL ELEMENTS		ARCHITECTURAL ELEMENTS	4	FACIES	into the database schema
Case ID		1	Subset ID	1	Depositional element ID		Architectural element ID	\sim	Facies ID	in form of goological
Source type			Case ID	$\rightarrow \alpha$	D Subset ID		Depositional element ID		Architectural element ID	in torm of geological
Year			Subset width		Original code		Original code		Original code	objects belonging to
Authors			Subset height		Depositional element type		Original arch. element type		Original facies type	different scales of
Geographic location			Original target scale		Thickness		Miall's architectural element type		Facies type	observation, nested in a
Basin			Subset target scale		Apparent width		Architectural element type		Facies type DQI	hierarchical fashion.
Lithostratigraphic unit			Spatial observation type		Partial width		Arch. element type DQI		Thickness	Each order of objects is
River			Subset relative distality		Unlimited width		Thickness		Apparent width	assigned a different table
Age from			Tectonic setting		Width		Apparent width		Partial width	and each object within a
Age to			Subsidence types (MV)		Width determination		Partial width		Unlimited width	table is given a unique
Data types (MV)			Subsidence rate		Partial dip length		Unlimited width		Width	table is given a unique
Dataset DQI			Basin climate type		Unlimited dip length		Width		Partial dip length	numerical identifier that is
Full reference			Catchment climate type		Dip length		Partial dip length		Unlimited dip length	used to keep track of the
Additional literature			Relative temperature change		Cross-sectional area		Unlimited dip length		Dip length	relationships between the
Notes			Relative humidity change		Net-to-gross ratio		Dip length		Boulder to gravel percentage	different objects, both at
[]			Discharge regime class		Paleocurrent variance class		Cross-sectional area		Sand percentage	the same scale
			Bankfull discharge		Braiding index		Net-to-gross ratio		Silt percentage	(transitions) and also
SUBSET STATISTICS	,				Sinuosity parameter		Mean bankfull depth		Clay percentage	across different scales
Statistic ID					Mean bankfull depth		Mean bankfull width		Notes	(containment) Fach
Subset ID					Mean bankfull width		Notes			single deteast is split into
Original summary code			Catchment processes (MV)		Notes				FACIES TRANSITIONS	single dataset is split into
			Basin vegetation type		L	1	1			a series of strationaphic



DATABASE SCHEME - implementation

The building blocks of fluvial architecture, belonging to the different scales considered, are recognizable as lithosomes in ancient successions, in both outcrop and subsurface datasets. The original recognition of these entities is essentially the result of 1D/2D/3D data interpretation: the tables associated to these objects contain a combination of interpreted soft data (e.g. object type) and measured hard data (e.g. thickness).





СН	Channel-fill	Left: ARCHI	TECTURAL ELEMENT							
DA	Downstream accreting barform	TYPE CLASSES								
LA	Lateral accreting barform	- modifi	ed after Miall (1996) -	FACIES UNIT TYPE CLASSES						
DLA	DA and/or LA barform			- modified after Miall (1996)						
SB(CH)	In-channel sandy bedform elem.	G-	Gravel to boulder, undefined structure	Sr	Ripple X-laminated sand					
SG	Gravity flow body	S-	Sand, undefined structure	Sh	Horizontally bedded sand					
НО	Scour hollow fill	F-	Silt to clay, undefined structure	SI	Low-angle X-bedded sand					
FF	Overbank fines element	Gmm	Matrix supported massive gravel	Ss	Scour-fill sand					
CS	Crevasse splay / lacustrine delta	Gmg	Matrix supported graded gravel	Sm	Massive sand					
CR	Crevasse channel	Gci	Clast supported inverse graded gravel	FI	Laminated sand, silt and clay					
		Gcm	Clast supported massive gravel	Fsm	Laminated or massive silt and clay					
	Levee	Gh	Clast supported crudely bedded gravel	Fm	Massive clay and silt					
SF	Sandy sheetflood dom. floodplain	Gt	Trough X-bedded gravel	Fr	Root bed					
AC	Abandoned channel	Gp	Planar X-bedded gravel	С	Coal					
LC	Lake	St	Trough X-bedded sand	Р	Pedogenic carbonate					
С	Coal body	Sp	Planar X-bedded sand		•					

DATA DEFINITION AND CROSS-SCALE RELATIONSHIPS A set of rules has been established to keep object definition as

> coherent and objective as possible. Depositional elements are defined on dep_el_type the basis of sound geometrical criteria, floodplain rather than on their geological channel_comple significance. Classification of floodplain architectural element and facies unit channel_comple types broadly follow Miall's (1996) floodplain scheme, though original classes used in floodplain

46

46

46

46

46

OBJECTS TRANSITIONS

The same numerical indices that are used for representing containment relationships are also used for object neighbouring relationships, represented within tables containing transitions in the vertical, crossvalley and along-valley directions. The CS 608 + hierarchical order of the bounding surface across which the transition occurs is also specified at the facies and architectural element scales; the bounding surface hierarchy proposed by Miall (1996) has been adopted.



dataset_D

bounding su... A

CASE STUDIES CLASSIFICATION Most of the metadata that refers to the original source of data/information (e.g. type of data acquisition) is stored within the most external table, for each case study. The attributes for each subset comprise some more metadata (e.g. original coding, type of spatial observation...) and all the categorical and numerical variables that are used to define the subsets themselves (e.g. climate type, subsidence rates, river planform pattern, etc.). The amplitude of a subset determines the types of objects that are suitable for its characterization: they are stated as the subset target scale.

🤌 case_ID	source type	year	authors	geographic_location	basin	lithostrat_unit	age_from	age_to	river	data_types	reference_citation	dat
1	Publication	1988	Miall A. D.	SW Colorado	Paradox Basin	Kayenta Fm.	Sinemurian	Toarcian	(NULL)	Outcrops	Miall A. D. (1988) Architectural elements and bounding su	. A
2	Publication	1999	Hornung J., Aigner T.	SW Germany, Baden-Wuerttenberg	Keuper Basin	Middle-Upper Stubensandstein	Norian	Norian	(NULL)	Outcrops,Cores,Well logs,GPR	Hornung J., Aigner T. (1999) Reservoir and aquifer char	A
3	Publication	2008	Amorosi A., Pavesi M., Ricci Lucc	N Italy, Po Plain	Po Basin	(NULL)	Ionian	Holocene	(NULL)	Cores, Well cuttings	Amorosi A., Pavesi M., Ricci Lucchi M., Sarti G., Piccin A	. с
4	Publication	2001	Dalrymple M.	S Utah, Kaiparowits Plateau	Paradox Basin	Straight Cliffs Fm.	Turonian	Campanian	(NULL)	Outcrops	Dalrymple M. (2001) Fluvial reservoir architecture in the	A
5	Publication	2003	Carter D. C.	Java Sea	Asri Basin	Talang Akar Fm.	Chattian	Aquitanian	(NULL)	Cores, Well logs, 3D seismics	Carter D. C. (2003) 3-D seismic geomorphology: insights i	. В
6	Publication	2006	Meadows N. S.	E Irish Sea	East Irish Sea Basin	Ormskirk Sandstone Fm.	Anisian	Anisian	(NULL)	Cores, Well logs	Meadows N. S. (2006) The correlation and sequence arc	C
7	Publication	2009	Pranter M. J., Cole R. D., Panjait	W Colorado	Piceance Basin	Lower Williams Fork Fm.	Campanian	Campanian	(NULL)	Outcrops	Pranter M. J., Cole R. D., Panjaitan H., Sommer N. K. (2	A
8	Publication	1984	Johnson S. Y.	NW Washington, North Cascades	Chuckanut Basin	Bellingham Bay Mb., Chuckanut Fm.	Ypresian	Ypresian	(NULL)	Outcrops	Johnson S. Y. (1984) Cyclic fluvial sedimentation in a rapi	Α.
9	Publication	2001	Jones S. J., Frostick L. E., Astin T	E Spain, Central Pyrenees	Ebro Basin	Rio Vero Fm.	Aquitanian	Langhian	(NULL)	Outcrops	Jones S. J., Frostick L. E., Astin T. R. (2001) Braided str	A
10	Publication	1997	Hjellbakk A.	N Norway, Varanger Peninsula	Barents Sea Basin	Seglodden Mb., Båsnæring Fm.	Cryogenian	Cryogenian	(NULL)	Outcrops	Hjellbakk A. (1997) Facies and fluvial architecture of a hi	A
11	Publication	1993	Bristow C. S.	Bangladesh	Bengal Basin	(NULL)	Holocene	Holocene	Brahmaputra	Outcrops	Bristow C. S. (1993) Sedimentary structures exposed in	A
Exc	ernts	fro	m data sourc	e (above) and								

DATA RANKING A series of data quality indices (DQI) have been implemented in the scheme as a threefold rating system to allow the ranking of data quality and reliability, and to filter it accordingly. Although the dataset DQI rates the entire case study, other DQI's are used for ranking class domain attribute assignment for each entry.

Ŭ 740	430 46	floodplain		Execute from data acurac (abova) and				\sim				5			
	_		the source works are also maintained.	Excerpts from data_source (above) and	🤌 subset_ID 🏼 🤌 case_ID	original_code	subset_width subset_height original_target_	scale subset_target_scale :	spatial_type relative_distality	tectonic_setting basin_type	subsiden	.ce_types sub	osidence mean_sut	usidence	basin_synthetic_climate
			Every single object is assigned a	subsets (right) tables. This subsets table	1 1	Profile 2 (Fig. 3) Profile 3 (Fig. 4)	50.0 18.5 II+III 101.0 16.0 II+III	II+III II+III	2D section (NULL)	Convergent Backarc basi	in (NULL)	(NL		(NULL)	Arid
	arch el ID dep e	I ID arch el type	numerical index that works as its unique	consists of 58 attributes some of which are	3 2	Kottweil profile (Fig. 5 and 1	205.0 40.0 II	II	2D section (NULL)	Cratonic Intracraton	c basin (NULL)	(N	JLL)	(NULL)	Semiarid
			numerical muex that works as its unique	we get for an electron and an and an and a this	4 2 5 2	Kottweil profile (Fig. 5 and 1 Hoesslinswart profile (Fig. 6)	145.0 20.0 II 162.0 20.0 II	П	2D section = 2D section +	Cratonic Intracratoni Cratonic Intracrator	ic basin (NULL)	(NL)		(NULL)	Subhumid
	721 41) FF	identifier; these indices are used to	meant for ancient or modern cases only; this	6 2	Hoesslinswart profile (Fig. 6)	63.0 8.0 II	Ш	2D section =	Cratonic Intracraton	c basin (NULL)	(NI	JLL)	(NULL)	Subhumid
Above/left: hypotetical example	732 /11	20	relate the tables (as primary and foreign	table is editable and extendable at any time.	7 2 8 2	Katzenbuehl profile (Fig. 7) Katzenbuehl profile (Fig. 7) U	130.0 37.0 II 125.0 5.0 II	II	2D section + 2D section =	Cratonic Intracratonia Cratonic Intracrator	. basin (NULL) ic basin (NULL)	(NU	.UL) .ULL)	(NULL)	Semiarid Subhumid
showing object indexing at all	752 41	, 03		Some of these attributes are only expressed as	9 2	Katzenkopf profile (Fig. 8 an	350.0 33.0 II	II	2D section =	Cratonic Intracraton	a basin (NULL)	(NI	JLL)	(NULL)	Semiarid
Z solos and illustrating how the	733 41) LC	keys) reproducing the nested		10 2 11 2	Katzenkopt profile (Fig. 8 an Einoed, GWM 2 log (Fig. 12)	250.0 8.0 II (NULL) 30.0 II+III	III	1D vertical +	Cratonic Intracratonic Cratonic Intracrator	ac basin (NULL)	(NU		(NULL)	Subhumid
	740 40		containment of each object type within	relative change (=, -, +) in a given variable	12 2	Schwaeb, Gmuend, KB 90/15	(NULL) 33.0 II+III	III	1D vertical -	Cratonic Intracratoni	: basin (NULL)	(NI	JLL)	(NULL)	Semiarid
nested containment of each	740 42		the higher coole negative higher	between subsets.	13 2 14 2	Schwaeb. Gmuend, KB 90/15	(NULL) 14.0 II+III	III	1D vertical -	Cratonic Intracratonic Cratonic Intracraton	c basin (NULL)	(N)	JLL)	(NULL)	Subhumid
order of objects is implemented	756 42	LV	the higher scale parent object		15 3	Core MN1 (Fig. 3) + cross-se Fig. 5	51000.0 270.0 I+II 2090.0 300.0 I	I	2D section (NULL)	Convergent Peripheral fr	reland basin Flexural k	.oad,Compaction 10-	100 m/Myr	(NULL)	Subhumid
\bigvee 1912 in the tables by making use of			(depositional elements within subsets.	Below: representation of categories of	17 5	Reservoir 35-1	7500.0 20.0 I+II	I+II	Pseudo3D (NULL)	Convergent Backarc bar	in Fault cor	Introlled, Compaction (N	JLL)	(NULL)	(NULL)
	757 42	5 AC	oto)	completeness (Ceeben & Lindenwood, 1002)	18 9 19 9	Reservoir 34-2 Reservoir 34-1	7500.0 20.0 I+II 7500.0 15.0 I+II	I+II I+II	Pseudo3D (NULL) Pseudo3D (NULL)	Convergent Backarc basi	in Fault con'	.trolled,Compaction (NU introlled,Compaction (N		(NULL)	(NULL)
the unique indices.			elc. <i>)</i> .	completeness (Geenan & Onderwood, 1995)	20 5	Reservoir 33-Series	7500.0 25.0 I+II	I+II	Pseudo3D (NULL)	Convergent Backarc bar	n Fault cor	ntrolled,Compaction (N	JU)	(NULL)	(NULL)
facios ID, arch ol ID, facios typo				」 of observed/sampled dimensional parameter. ↓	21 6 22 7	Fig. 9 and 10 Table 1	44300.0 245.0 I 8700.0 250.0 I+II	I	2D section (NULL) 2D section (NULL)	Extensional Terrestrial ri Convergent Peripheral f	t valley Fault con/ oreland basin (NULL)	trolled, Thermal (NU)	.ULL)	(NULL) (NULL)	Arid
					23 8	Table II (part 2) Glacier section	(NULL) (NULL) III	III	2D section (NULL)	Strike-slip Transtensic	hal basin Fault con	ntrolled (NI	JLL)	(NULL)	Humid
1911 763 FI DIMENSIONAL PARAMETERS The dimensi	ions of each o	lenositional e	lement architectural element and facies	← outcrop →	24 8 25 8	Table II (part 2) Bellingham B Table III 'Transition count ma	(NULL) (NULL) III (NULL) (NULL) III		2D section + 2D section (NULL)	Strike-slip Transtensior Strike-slip Transtensir	al basin Fault con nal basin Fault co	trolled (NU ntrolled (N		(NULL)	Humid
			althe end de metre en le esthe este		26 9	Fig. 6	(NULL) 78.0 II+III	III	1D vertical (NULL)	Convergent Peripheral f	preland basin Flexural J	road (NI	JLL)	(NULL)	Humid
1912 771 Gcm Unit can be stored in their tables as representat	tive thickness	es, cross-vai	ey widths and downstream lengths, each	Complete lengths	27 9	Fig. 9 Fig. 10	27.0 7.0 II+III 25.0 6.0 II+III	II	2D section + 2D section =	Convergent Peripheral f	oreland basin Flexural lo	load (N/		(NULL)	Humid
1913 771 st classified according to the completeness of the	observations	into complet	e, partial and unlimited dimensions, since	partial lengths	29 9	Fig. 11 Fig. 7	20.0 2.5 II+III	II	2D section =	Convergent Peripheral fr	reland basin Flexural	load (NL	JLL)	(NULL)	Humid
acma abaam/atiana ara truncatad at ana limit a	f the cheery	tion window	partial langtha) whoreas some others of		31 10	Fig. 4 Seglodden area - meas	(NULL) 71.0 III	III	1D vertical (NULL)	Extensional (NULL)	Fault cor	ntrolled (N	JLL)	(NULL)	(NULL)
1914 771 Sp Some observations are truncated at one infit o			partial lengths), whereas some others at		32 10 33 10	Fig. 4 Seglodden area - meas Fig. 4 Seglodden area - meas	(NULL) 76.0 III (NULL) 58.0 III	III	ID vertical =	Extensional (NULL)	Fault con/	trolled (NU	AL)	(NULL)	(NULL)
1915 771 Sr both ends (unlimited lengths); their attribution d	lepends also (on the type of	data available (e.g. unlimited widths from		34 10	Fig. 4 Smellror area - measur	(NULL) 132.0 III	II	1D vertical +	Extensional (NULL)	Fault con	ntrolled (NI	JLL)	(NULL)	(NULL)
borehole correlation) Cross-valley cross section	nal areas of th	e lithosomes	can be also stored	modified after:	35 10 36 10	Fig. 9 A Fig. 9 B	44.0 14.0 II+III 48.0 13.0 II+III	II+III II+III	2D section - 2D section +	Extensional (NULL) Extensional (NULL)	Fault con Fault co	trolled (NU ntrolled (N	.UL) .ULL)	(NULL)	(NULL) (NULL)
1916 774 FI DOTCHOIC CONCIATION). CI 033-Valicy CI 033 Sectio				Geehan & Underwood, 1993	37 11	Fig. 2 and 3	(NULL) 4.0 III	III	2D section (NULL)	Convergent (NULL)	Local isor	static load, Fault c (N	JLL)	3.900	Humid
								🤌 statistic_ID 🤞	subset_ID original_stat	st_summary_code obje	_t_typenum'	ber min_width	min_thickness	min_w/t max	_width max_thick
						Right:	excerpt from	1	17 35-1 Sands	tone body Char	nel-complex (/	NULL) 400.00	(NULL)	(NULL) 19	/00.00 18.00
					I	the su	bset statistics	3	17 35-1 Bar	LA		(NULL) 60.00	(NULL)	(NULL)	150.00 (NULL)
Ι ΟΠΤΡΠΤ ΔΝΟ ΔΡΡΠΟΔΤΙΟΝς			The information we append with a ph			table (containing	4	18 34-2 Sands	stone body Cha	Anel-complex ((NULL) 100.00	(NULL)	(NULL) 1	200.00 17.00
			I ne information we can derive ab	out the internal organization of the geological ob	ects			5	19 34-1 Sands'	stone body Char	inel-complex (NULL) 100.00	(NULL)	(NULL)	300.00 14.00
I ne dat	labase is pre	sently runnin	^{g on} l can be coupled with information ab	out their external geometry and dimensions: w	eare	aescri	Drive statistics	7	19 34-1 Aband 20 33-Series (Sandstone body Chr	opel-complex	NULL) 80.00		(NULL)	20.00 (NULL) 900.00 12.00
the <i>MvSQL</i> Database Management System, so it can be simply interrogate	d through SQ	Laueries, in a	order able to compile elaborations such	as probability density functions of given dimensio		of dim	ensional	8	20 33-Series F	Bar LA		(NULL) 50.00	5.00	(NULL)	180.00 8.00
to concrete quantitative information Example output resulting from data	haan interrook	tion is introd	able to complie elaborations such	as probability density functions of given dimensio	15 01	naram	eters and	9	22 Crevasse s	splay CS		279 14.00	0.20	9.800	265.00 5.20
to generate quantitative information. Example output resulting norm datat	base interroga		syntheses of aspect ratios for a	ny object type, choosing whether to include o	r not 🛛 🖊	tranait		10	22 Single-story	y channel body Char	inel-complex	116 13.80	1.20	5,500	/12.20 9.10
here to show the potential of this database as a tool for the quantita	ative characte	erization of f	Uvial Underestimated (nartial and unlimit	ed) and overestimated (annarent) dimensions		transit	on statistics for	11	22 Multistory c 23 Table II (p	thannel body Char	inel-complex	2/3 11./U	1.50	3.900 ·····	78.80 14.40 (NULL) 3.45
architecture. The information that can be derived may prove to be useful t	for answering	deneral rese	arch			objects	s which cannot	13	23 Table II (p	Jart 2) Glacier se Gt		45 (NULL)	0.10	(NULL)	(NULL) 2.20
architecture. The information that can be derived may prove to be decide		yeneral rese				be indi	vidually	14	23 Table II (p/	art 2) Glacier se Ss		44 (NULL)	0.05	(NULL)	(NULL) 2.60
questions about the interpretation of fluvial architecture and for guiding it	ts prediction i	n the subsur	CH width pdf- apparent widths only	N = 55 Width (m) Channel-complexes aspect ratios			vicially deviced	15	23 Table II (pr	art 2) Glacier se Sl		45 (NULL)	0.10	(NULL)	(NULL) 2.90
example applications are briefly presented				100000 • total W (1	38)	algitize	ea, as derived	16	23 Table II (pa	art 2) Glacier se St		266 (NULL)	0.10	(NULL)	(NULL) 28.60
						from s	tatistical	17	23 Table II (pa	Jart 2) Glacier se Sm		129 (NULL)	0.05	(NULL)	(NULL) 5.50
			0.01		25)	summ	aries	19	23 Table II (p/	art 2) Glacier se Fl		262 (NULL)	0.05	(NULL)	(NULL) 6.20
Channel complexes	СН	S-				Summe		20	23 Table II (pa	art 2) Glacier se Fm		253 (NULL)	0.05	(NULL)	(NULL) 17.80
FF Genetic nackages can be		Sp						21	23 Table II (pa	art 2) Glacier se P		41 (NULL)	0.05	(NULL)	NULL) 1.30





Above: probability density function of CH architectural elements width constructed using only apparent widths (on the left); scatter-plot of channel-complexes width: thickness aspect ratios classified according to dimension completeness class (on the right).

> All the data stored can be filtered according to the way case studies or individual subsets are classified on the basis of their external controls and depending variables. Provided that a statistically significant amount of data is gathered, it will be stochastic models. possible to exploit the database output to conduct quantitative comparisons of the architecture of fluvial depositional systems in different contexts; this will make it possible to gain insights into the effective role of the different controlling factors governing the sedimentary architecture of fluvial systems. Moreover, combining all the types of information herein presented, will enable the generation of synthetic models of fluvial specification). architecture (cf. Baas et al., 2005), which are represented by distinctive stacking patterns and lithosome geometries, modes of internal modern rivers examples. organization and reciprocal relationships. Furthermore, it will be possible to generate information to be used as input for numerical models of fluvial architecture, such as distributions of dimensional parameters and References transition probability matrices, that can be tailored to suit the particular characteristics of the alluvial suites. Sed. Geol. 21: 129-147. depositional context. The utility of the database as an instrument for the evaluation of the influence of sampling density on observations

CONCLUSIONS & FUTURE WORK

A relational database for the digitization of fluvial architecture has been devised, developed and populated with literature-derived case studies.

The early output tests demonstrate the potential impact of this tool on fluvial geology research, as an instrument that can be used mainly for:

a) improving our understanding of fluvial architecture in different settings and testing sensitivity to different controlling factors;

b) overcoming depositional and facies models, which are frequently based on few examples that are thought to be representative, but which may in fact be misleading;

c) assisting prediction of subsurface reservoir architecture through deterministic or

FUTURE DEVELOPMENTS The database will be further developed to make it better suitable for these purposes.

Several improvements can be put into practice, among them:

- better geometrical representation either through linkage to 2D/3D vector files of each lithosome object or inclusion of shape parameters;

- appending of particle-scale and/or diagenetic properties;

- refinement of subset attributes (e.g. addition of meta-attributes for time-scale

Moreover, similarly to what has been done for ancient fluvial systems case histories, a standard data definition and entry procedure must be established for digitizing

Most of the future work will focus on database population, with more literature and field case studies, and on testing its capabilities, also through numerical modelling once enough data is stored.

ALLEN J.R.L. (1978) Studies in fluviatile sedimentation: an exploratory quantitative model for architecture of avulsion-controlled BAAS H.J,, MCCAFFREY W.D., KNIPE R.J. (2005) The Deep-Water Architecture Knowledge Base: towards an objective comparison of deep-marine sedimentary systems. Petr. Geosc. 11: 309-320. GEEHAN G., UNDERWOOD J. (1993) The use of length distributions in geological modelling. IAS Spec. Publ. 15: 205-212. MIALL A.D. (1996) The geology of fluvial deposits: sedimentary facies, basin analysis and petroleum geology. Heidelberg, Springer-Verlag, 582 pp. PRANTER M.J., COLE R.D., PANJAITAN H., SOMMER N.K. (2009) Sandstone-body dimensions in a lower coastal-plain depositional setting: Lower Williams Fork Formation, Coal Canyon, Piceance Basin, Colorado. AAPG Bull. 93: 1379-1401.

Fluvial Research Group School of Earth and Environment **University of Leeds** Leeds LS2 9JT UK



Contacts:

Luca Colombera email: eelc@leeds.ac.uk mobile: +44 (0)7554096074

