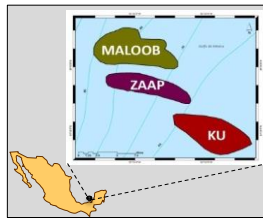
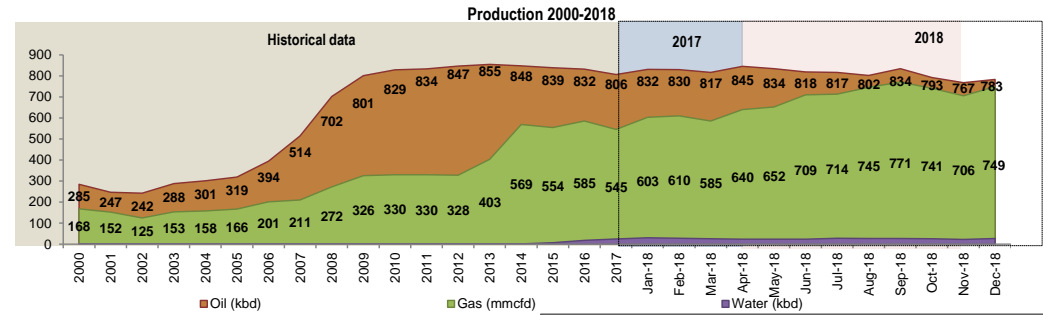


Field Map
Ku Maloob and Zaap



Thickness in oil window and average GOC* speed of movement by year

Field	Thickness ² (meters) ³		Average GOC speed of movement (vm/year)							
	max	min	2011	2012	2013	2014	2015	2016	2017	2018
			KU	112	5	54	31	31	34	7
MB	357	188	26	40	67	22	19	18	21	24
ZP	205	4	40	14	46	46	43	46	22	16



Observed production and functioning wells⁴ (Historical and last 12 months)

Ku, Maloob, Zaap fields	Average 2000-2010	Annual							2017												2018											
		2011	2012	2013	2014	2015	2016	2017	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18
		Oil (kbd)	447	834	847	855	848	839	832	806	832	830	817	845	834	818	817	802	834	793	767	783	832	830	817	845	834	818	817	802	834	793
Gas (mmcf/d)	206	330	328	403	569	554	585	545	603	610	585	640	652	709	714	745	771	741	706	749	603	610	585	640	652	709	714	745	771	741	706	749
Water (kbd)	0.4	1.4	1.3	1.5	1.7	6.5	17.5	25.1	30.3	27.5	25.3	23.7	23.4	23.3	27.9	27.3	26.4	25.6	22.6	26.5												
Functioning wells (no.)	75	142	157	172	175	176	177	170	172	172	171	166	167	171	173	173	174	174	173	174												

¹ Ku, Maloob and Zaap are the main fields in Ku-Malooob-Zaap Production Active. Information was supplied by Pemex Exploración y Producción by Pemex in monthly reports.
² Thickness in cretaceous from Ku, Maloob, Zaap field in the reference month.
³ Information about GOC speed of movement in 2010 is not available. Estimations are based on data from 2009 and 2011.
⁴ Information about production in 2000-2009 comes from Base de Datos Institucional de Pemex (BDI).
⁵ Field pressure just considers information from Cretaceous play.
⁶ Cyclical wells are those that present high GWR, % water and/or salt, and therefore must be closed to be repaired.
⁷ What defines whether a well is above or below the GOC is the relationship between its peak and the average GOC level in the field (Malooob has 3 different zones at distinct GOC levels), thereof well distance is a reference.
⁸ 126 closures and reopenings are because of High Volume of Inventory.
⁹ 39 closures and reopenings are because of High Volume of Inventory.

Oil-Gas relationship observed by field, averaging by well (cf/b) (Historical and last 12 months)

Field	Average 2000-2010	Annual							2017												2018											
		2011	2012	2013	2014	2015	2016	2017 ⁸	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18
		Ku	532	553	548	754	1,381	1,418	1,445	5,021	4,049	4,470	4,522	4,501	4,804	5,097	5,180	5,268	5,274	5,338	5,255	5,033	4,049	4,470	4,522	4,501	4,804	5,097	5,180	5,268	5,274	5,338
Malooob	282	270	275	356	366	423	552	482	354	344	407	506	454	446	420	512	514	511	551	562	354	344	407	506	454	446	420	512	514	511	551	562
Zaap	257	349	349	357	446	486	528	742.4	794.9	743.9	660	669	722	797	962	672	665	719	712	770	794.9	743.9	660	669	722	797	962	672	665	719	712	770
Total	447	394	390	491	717	725	769	1,634	1,362	1,438	1,430	1,451	1,509	1,628	1,705	1,693	1,713	1,746	1,747	1,710	1,362	1,438	1,430	1,451	1,509	1,628	1,705	1,693	1,713	1,746	1,747	1,710

Pressure by field⁵ (kg/cm²)

Field	Average 2001-2011	2013	2014	2015	2016	2017	2018
Ku	137	120	120	117	114	112	109
Malooob	148	130	130	120	115	112	131
Zaap	146	128	130	123	118	115	134
Total	141	126	127	120	116	113	125

Annual change in pressure by field (%)

Field	Acum. 2001-2011	2013	2014	2015	2016	2017	2018	Acum. 2001-2017
Ku	-21.2%	0.3%	0.0%	-2.8%	-2.1%	-2.2%	-2.2%	-27.1%
Malooob	-22.6%	3.3%	0.4%	-7.5%	-4.2%	-3.3%	17.3%	-31.2%
Zaap	-24.7%	3.5%	1.6%	-5.3%	-4.2%	-2.8%	16.5%	-31.1%
Total	-19.4%	2.4%	0.7%	-5.2%	-3.5%	-2.8%	10.6%	-27.3%

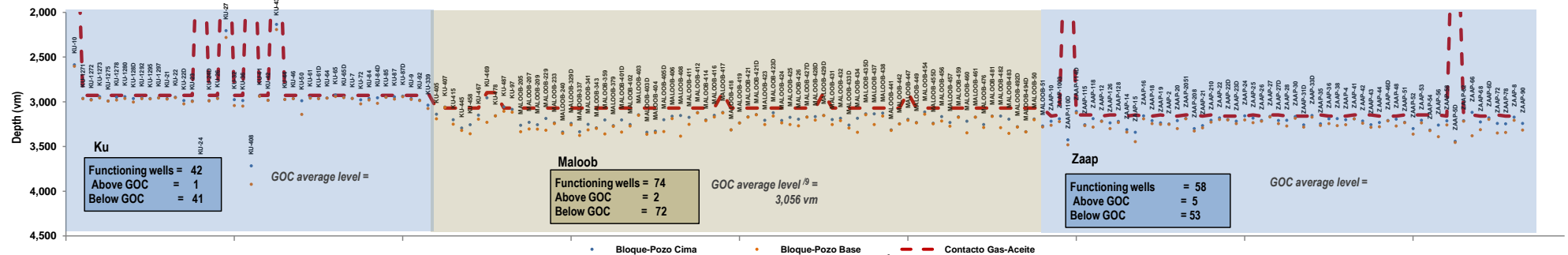
Closure and reopening of wells⁶ (no.)

Concept	Jan ⁹	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dic	Total
Closure	2	7	23	4	3	1	11	3	1	6	40	12	113
Reopening	6	4	20	4	4	5	3	13	3	0	43	8	113

Completion and Major well repairs (no.)

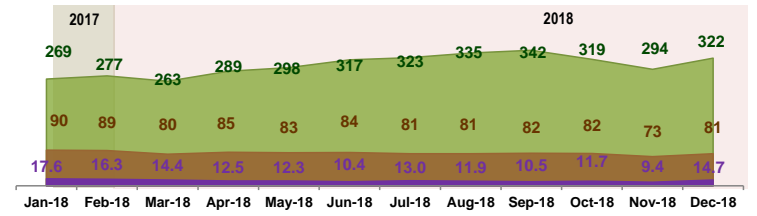
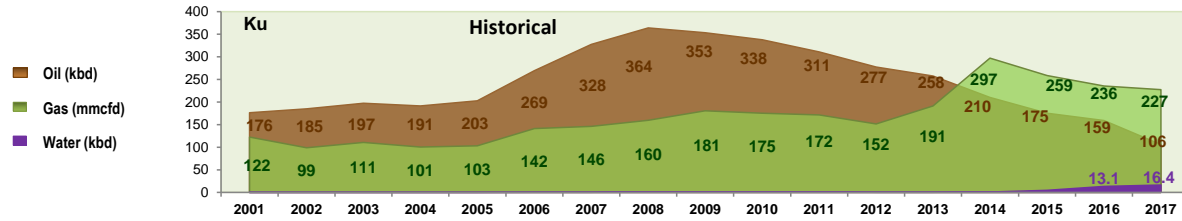
Activity	Jan ⁹	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dic	Total
Completion	2	0	1	1	0	0	1	0	1	1	0	0	7
Major repairs	1	1	2	1	0	0	1	0	0	0	1	2	9

Functioning wells distribution in this month and its distance with respect to average GOC in each field⁷



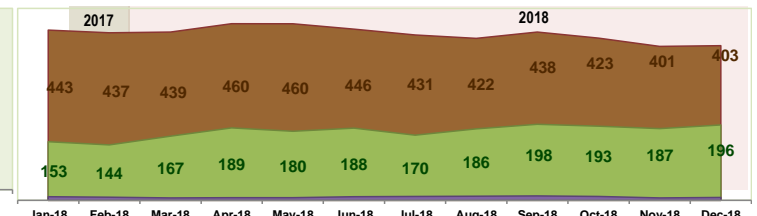
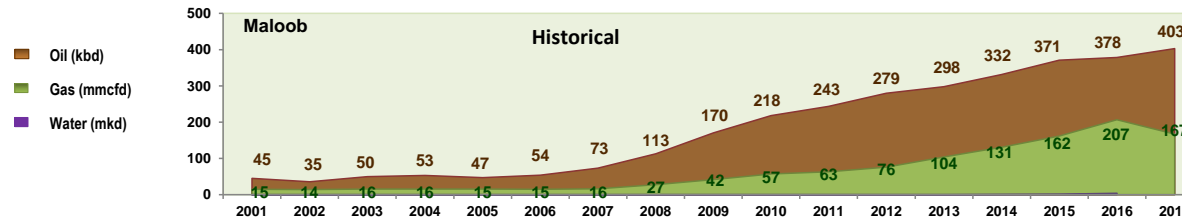
* Abbreviations: GOC= Gas-Oil contact, vm = vertical meters, vm/year = vertical meters by year, kbd= thousand barrels per day, mmcf/d= million cubic feet per day, cf/b= cubic feet per barrel, no.= number, kg/cm²= kilogram per square centimeter

Observed production and functioning wells, by field (Historic and last 12 months)



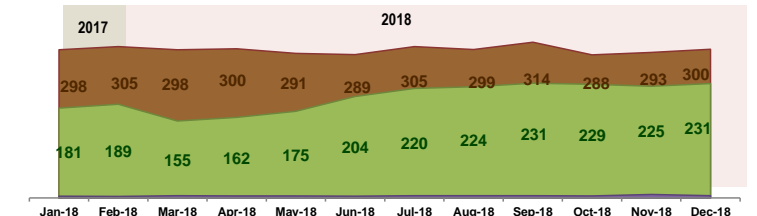
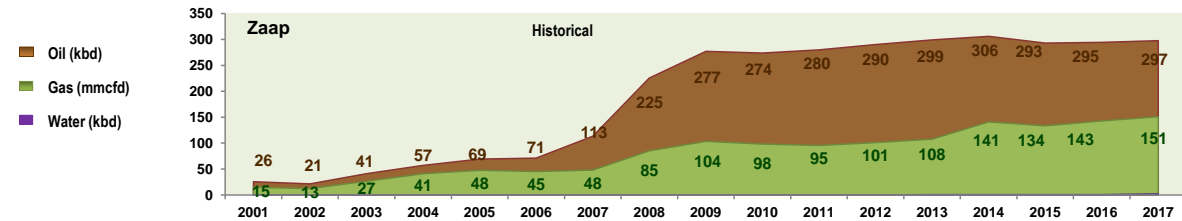
Ku	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Oil (kbd)	176	185	197	191	203	269	328	364	353	338	311	277	258	210	175	159	106
Gas (mmcf)	122	99	111	101	103	142	146	160	181	175	172	152	191	297	259	236	227
Water (kbd)	0.0	0.0	0.0	0.0	0.0	0.1	0.1	1.2	1.1	0.7	0.9	0.6	0.5	0.6	4.5	13.1	16.4
Functioning wells (no.)	28	28	30	31	36	45	51	54	55	53	48	51	58	56	50	45	39

	2017												2018											
	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18
Oil (kbd)	90	89	80	85	83	84	81	81	82	82	73	81	443	437	439	460	460	446	431	422	438	423	401	403
Gas (mmcf)	269	277	263	289	298	317	323	335	342	319	294	322	153	144	167	189	180	188	170	186	198	193	187	196
Water (kbd)	17.6	16.3	14.4	12.5	12.3	10.4	13.0	11.9	10.5	11.7	9.4	14.7	9.2	8.1	6.1	7.1	7.1	9.4	10.1	10.7	11.4	9.8	6.2	7.3
Functioning wells (no.)	40	40	39	37	37	39	40	41	42	42	42	42	74	74	75	73	73	73	74	74	74	74	73	74



Maloob	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Oil (kbd)	45	35	50	53	47	54	73	113	170	218	243	279	298	332	371	378	403
Gas (mmcf)	15	14	16	16	15	15	16	27	42	57	63	76	104	131	162	207	167
Water (mkd)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.4	0.2	0.5	1.1	3.9	6.3
Functioning wells (no.)	8	7	9	10	11	13	19	27	33	39	44	51	57	61	72	76	74

	2017												2018											
	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18
Oil (kbd)	443	437	439	460	460	446	431	422	438	423	401	403	443	437	439	460	460	446	431	422	438	423	401	403
Gas (mmcf)	153	144	167	189	180	188	170	186	198	193	187	196	153	144	167	189	180	188	170	186	198	193	187	196
Water (mkd)	9.2	8.1	6.1	7.1	7.1	9.4	10.1	10.7	11.4	9.8	6.2	7.3	9.2	8.1	6.1	7.1	7.1	9.4	10.1	10.7	11.4	9.8	6.2	7.3
Functioning wells (no.)	74	74	75	73	73	73	74	74	74	74	73	74	74	74	75	73	73	73	74	74	74	74	73	74



Zaap	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Oil (kbd)	26	21	41	57	69	71	113	225	277	274	280	290	299	306	293	295	297
Gas (mmcf)	15	13	27	41	48	45	48	85	104	98	95	101	108	141	134	143	151
Water (kbd)	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.4	0.3	0.4	0.7	0.7	0.9	0.6	2.4	
Functioning wells (no.)	4	3	6	7	10	13	26	39	45	48	50	55	57	58	55	56	56

	2017												2018											
	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18
Oil (kbd)	298	305	298	300	291	289	305	299	314	288	293	300	298	305	298	300	291	289	305	299	314	288	293	300
Gas (mmcf)	181	189	155	162	175	204	220	224	231	229	225	231	181	189	155	162	175	204	220	224	231	229	225	231
Water (kbd)	3.5	3.2	4.7	4.0	4.0	3.5	4.8	4.7	4.5	4.1	7.0	4.6	3.5	3.2	4.7	4.0	4.0	3.5	4.8	4.7	4.5	4.1	7.0	4.6
Functioning wells (no.)	58	58	57	56	57	59	59	58	58	58	58	58	58	58	57	56	57	59	59	58	58	58	58	58